Cl **48** *SC* **48.2.4.2** *P* **128** *L* **42** # 1

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

"ordered set ||LPIDLE|| is a special of ||I||" doesn't make sense

SuggestedRemedy

change to "ordered set ||LPIDLE|| is a special case of ||I||"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* *L* # 2

Anslow, Pete Nortel Networks

Comment Type **ER** *Comment Status* **D**

When modifying existing clauses, the change instructions are: change, delete and insert.
For "change" strikethrough and underscore are used to indicate removal of old material and adding of new material respectively.
For "delete" and "insert" normal font is used.
Throughout the draft, this convention is not followed.

SuggestedRemedy

The following are example corrections. Therec are many, many more places that need to be fixed.
Page 15 remove underscore from text added with insert (2 places)
Page 16 show the added text (change) in the clause 14 title with an underscore
Page 24 show the added text (change) in the 14.10 title with an underscore
Page 24 show the changes to LS4 (change)
Page 25 the "22-3" on line 15 should not be underlined
Page 34 remove underscore from text added with insert in 24.1.1
Page 214 remove underscore from text added with insert in 74.5.4
Page 215 remove strikeout text from 74.5.4.1 which has been added with an (insert)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.3.1.2** *P* **19** *L* **2** # 3

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

This says "Insert Figure 14-7a showing ... and renumber subsequent figures appropriately"
The point of using Figure 14-7a is that there is no need to re-number subsequent figures.

SuggestedRemedy

Delete "and renumber subsequent figures appropriately"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Figure 14-7a should be renumbered to 14-8 and all subsequent figures and references changed appropriately to follow accepted conventions.

Cl **22** *SC* **22.2.2** *P* **26** *L* **46** # 4

Anslow, Pete Nortel Networks

Comment Type **ER** *Comment Status* **D**

This says:
Change 22.2.2 to show LPI signaling:
22.2.2 MII signal functional specifications
Change 22.2.2.2 for clock definitions:

There is no change to 22.2.2 shown before the change to 22.2.2.2

SuggestedRemedy

either show a change to 22.2.2 or remove the first of the two change instructions

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove the first change instruction and the heading for 22.2.2

Cl **00** *SC* **0** *P* **33** *L* **4** # 5

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

"Add" is not a valid change instruction

SuggestedRemedy

Change all instances of "Add" change instructions to "Insert"
e.g. pages 33, 51, 59, 60, 65, 69, etc.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **24** *SC* **24.4.1** *P* **49** *L* **7** # 6

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

This says "Insert the following new primitive definitions as shown below at the end of clause 24.4.1.3.3:"

SuggestedRemedy

change "shown below at the end of clause 24.4.1.3.3:" to
"shown below after clause 24.4.1.3.3:"

make the equivalent change in other places in the draft where this occurs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Change "at the end of" to "after" in the following places:

Line 50 of page 44
Line 1 of page 45
Line 1 of page 49
Line 7 of page 49
Line 21 of page 52 (Clause 25.3)
Line 38 of page 53 (Clause 25.4.6)
Line 48 of page 44 (Clause 25.4.11.1)
Line 24 of page 56 (Clause 25.4.11.2)

Cl **70** *SC* **70.7.2** *P* **198** *L* **15** # 7

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

nano seconds is "ns" not "nS"
Also applies to Table 71-6

SuggestedRemedy

Change "nS" to "ns" in Table 70-6 (two places)
Change "nS" to "ns" in Table 71-6 (two places)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **74** *SC* **74.0.1** *P* **213** *L* **3** # 8

Anslow, Pete Nortel Networks

Comment Type **ER** *Comment Status* **D**

The Functional block diagram subclause is 74.4.1 not "74.0.1" as shown in the draft.
Also the Figure shown is Figure 74-2

SuggestedRemedy

change the subclause number to 74.4.1
change Figure to 74-2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **74** *SC* **74.0.1** *P* **213** *L* **9** # 9

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

The Functional block diagram title (actually Figure 74-2 not as shown here) is being modified by 802.3ba

SuggestedRemedy

Coordinate changes to clause 74 with 802.3ba so that 802.3az does not reverse changes made by 802.3ba

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
802.3 az level co-ordination needed.

Cl **78** *SC* **78.1.4** *P* **231** *L* **31** # 10

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

The title is "Relation of EEE to other standards" but the text seems to relate to 802.3. 802.3az is an amendment to 802.3, so "other standards" is inappropriate.

The title of Table 78-1 "Relation between EEE PHY's and IEEE protocols" is similarly inappropriate

SuggestedRemedy

Change subclause title to "EEE PHY types"
Change title of Table 78-1 to "EEE PHY types and associated clauses"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #198

Cl **78** *SC* **78.3** *P* **233** *L* **12** # 11

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

why is most of the page blank?

SuggestedRemedy

Move 78.4 to start on page 233

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will be done later. It is blank now because 78.4 is in a separate file from 78.1-3.

Cl **00** *SC* **0** *P* *L* # 12

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

To be consistent with the base standard "usec" should be shown as the greek letter mu followed by "s"
This occurs in 8 places in the draft and also in Table 78-2 where mu followed by sec should also be mu followed by s

SuggestedRemedy

change "usec" to the greek letter mu followed by "s" in 8 places in the draft
change mu followed by sec sto mu followed by s in Table 78-2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.4** *P* **234** *L* **10** # 13

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

"10 Gbps" should be "10 Gb/s" see
http://ieee802.org/3/tools/editorial/requirements/words.html

SuggestedRemedy

Change "10 Gbps" to "10 Gb/s"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **79** *SC* **79** *P* **243** *L* **1** # 14

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D** *See 320*

The format of the clause title is incorrect (no dot or space before "IEEE")

SuggestedRemedy

fix the format

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

OBE #320

Cl **79** *SC* **79.3.a** *P* **243** *L* **25** # 15

Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**

The headings in 79.3.a are inconsistent:
79.3.a
79.3.a.1
79.3.1.1
79.3.1.2
79.3.1.3

SuggestedRemedy

Fix the format

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change from
79.3.a
79.3.a.1
79.3.1.1
79.3.1.2
79.3.1.3

to
79.3.a
79.3.a.1
79.3.a.2
79.3.a.3
79.3.a.4

Cl **79** *SC* **79.3.a.1** *P* **243** *L* **1** # 16
Anslow, Pete Nortel Networks

Comment Type **E** *Comment Status* **D**
"(" missing

SuggestedRemedy
change "2 octets wide)" to "(2 octets wide)"

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **22** *SC* **22.7a.2.3** *P* **32** *L* **20** # 17
Barrass, Hugh Cisco

Comment Type **E** *Comment Status* **D**
Arrow heads & tails are not correctly aligned

SuggestedRemedy
Clean up the arrows in Fig 22-21.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **36** *SC* **36.2.5.2.6** *P* **80** *L* **2** # 18
Barrass, Hugh Cisco

Comment Type **E** *Comment Status* **D**
Reference is to Figure 36-9b

SuggestedRemedy
Change 36-9b to Figure 36-9b

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **36** *SC* **36.2.5.2.2** *P* *L* # 19
Barrass, Hugh Cisco

Comment Type **E** *Comment Status* **D**
Arrow heads & tails not well aligned.

SuggestedRemedy
Clean up arrows in Fig 36-7a

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **48** *SC* **48.2.6.2.5** *P* **134** *L* **8** # 20
Barrass, Hugh Cisco

Comment Type **E** *Comment Status* **D**
Many arrows in fig 48-9a & 48-9b are not properly aligned.

SuggestedRemedy
Align the arrow heads & tails in fig 48-9a & 48-9b.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **22** *SC* **22.2.2.9a** *P* **30** *L* **6** # 21
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**
Clock Stoppable

Refer also to comment #6, rev 1.5

The clock stoppable bit as currently defined is not useful. It is better to split the control into two directions - PHY-MAC & MAC-PHY.

The MAC needs to assert a bit to allow the PHY to stop the clock in the PHY-MAC direction; The PHY needs to assert a bit to allow the MAC to stop the clock in the MAC-PHY direction

SuggestedRemedy
Change "RX_CLK_stoppable bit" to "Clock stop enable bit"

Also, make the reference an active link.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **35** *SC* **35.2.2.6a** *P* **66** *L* **54** # 22

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Clock Stoppable

Refer also to comment #6, rev 1.5

The clock stoppable bit as currently defined is not useful. It is better to split the control into two directions - PHY-MAC & MAC-PHY.

The MAC needs to assert a bit to allow the PHY to stop the clock in the PHY-MAC direction; The PHY needs to assert a bit to allow the MAC to stop the clock in the MAC-PHY direction

SuggestedRemedy

Change "Clock stoppable bit" to "Clock stop capable bit"

Also, change the reference to 45.2.3.2.2a and make it an active link.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **35** *SC* **35.2.2.9a** *P* **68** *L* **51** # 23

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Clock Stoppable

Refer also to comment #6, rev 1.5

The clock stoppable bit as currently defined is not useful. It is better to split the control into two directions - PHY-MAC & MAC-PHY.

The MAC needs to assert a bit to allow the PHY to stop the clock in the PHY-MAC direction; The PHY needs to assert a bit to allow the MAC to stop the clock in the MAC-PHY direction

SuggestedRemedy

Change "Clock stoppable bit" to "Clock stop enable bit"

Also, make the reference an active link.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **46** *SC* **46.3.1.5a** *P* **121** *L* **49** # 24

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Clock Stoppable

Refer also to comment #6, rev 1.5

The clock stoppable bit as currently defined is not useful. It is better to split the control into two directions - PHY-MAC & MAC-PHY.

The MAC needs to assert a bit to allow the PHY to stop the clock in the PHY-MAC direction; The PHY needs to assert a bit to allow the MAC to stop the clock in the MAC-PHY direction

SuggestedRemedy

Change "clock stoppable bit" to "Clock stop capable bit"

Also, change the reference to 45.2.3.2.2a.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **46** *SC* **46.3.2.4a** *P* **124** *L* **13** # 25

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Clock Stoppable

Refer also to comment #6, rev 1.5

The clock stoppable bit as currently defined is not useful. It is better to split the control into two directions - PHY-MAC & MAC-PHY.

The MAC needs to assert a bit to allow the PHY to stop the clock in the PHY-MAC direction; The PHY needs to assert a bit to allow the MAC to stop the clock in the MAC-PHY direction

SuggestedRemedy

Change "clock stoppable bit" to "Clock stop enable bit"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **24** *SC* **24.2.2** *P* **35** *L* **27** # 26

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

** State diagram conventions **

It is not clear which state diagram conventions are relevant for each section in this amendment. Notes need to be added so that the conventions for each clause are clear.

The conventions may be cleaned up and coordinated in the next revision when all clauses are open.

SuggestedRemedy

Add a note (at the beginning of 24.2.2:

Note: The state diagram conventions described in 24.1.7 apply to all of the state diagrams in this clause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add a note (at the beginning of 24.2.2 and 24.3.3):

Note: The state diagram conventions described in 24.1.7 apply to all of the state diagrams in this clause.

Cl **25** *SC* **25** *P* **52** *L* **2** # 27

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

** State diagram conventions **

It is not clear which state diagram conventions are relevant for each section in this amendment. Notes need to be added so that the conventions for each clause are clear.

The conventions may be cleaned up and coordinated in the next revision when all clauses are open.

SuggestedRemedy

Insert new subclause:

25.1.1 State diagram conventions
The body of this standard is comprised of state diagrams, including the associated definitions of variables, constants, and functions. Should there be a discrepancy between a state diagram and descriptive text, the state diagram prevails.

The notation used in the state diagrams follows the conventions of 21.5; state diagram timers follow the conventions of 14.2.3.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **36** *SC* **36.2.4.12a** *P* **71** *L* **51** # 28

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

** State diagram conventions **

It is not clear which state diagram conventions are relevant for each section in this amendment. Notes need to be added so that the conventions for each clause are clear.

The conventions may be cleaned up and coordinated in the next revision when all clauses are open.

SuggestedRemedy

Add a note:

Note: The state diagram conventions described in 36.1.7 apply to all of the state diagrams in this clause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **40** *SC* **40.3.4** *P* **95** *L* **16** # 29

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

** State diagram conventions **

It is not clear which state diagram conventions are relevant for each section in this amendment. Notes need to be added so that the conventions for each clause are clear.

The conventions may be cleaned up and coordinated in the next revision when all clauses are open.

SuggestedRemedy

Add a note:

Note: The state diagram conventions described in 40.1.6 apply to all of the state diagrams in this clause.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

40.6.1 in the base document already states that "The notation used in the state diagrams follows the conventions of 21.5." and the proposed note appears to be redundant.

Cl **48** *SC* **48.2.6.2** *P* **130** *L* **24** # 30

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

** State diagram conventions **

It is not clear which state diagram conventions are relevant for each section in this amendment. Notes need to be added so that the conventions for each clause are clear.

The conventions may be cleaned up and coordinated in the next revision when all clauses are open.

SuggestedRemedy

Add a note:

Note: The state diagram conventions described in 48.2.6 apply to all of the state diagrams in this clause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.1.6** *P* **138** *L* **37** # 31

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

** State diagram conventions **

It is not clear which state diagram conventions are relevant for each section in this amendment. Notes need to be added so that the conventions for each clause are clear.

The conventions may be cleaned up and coordinated in the next revision when all clauses are open.

SuggestedRemedy

Add a note:

Note: The state diagram conventions described in 49.2.13.1 apply to all of the state diagrams in this clause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.4** *P* **172** *L* **2** # 32

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

** State diagram conventions **

It is not clear which state diagram conventions are relevant for each section in this amendment. Notes need to be added so that the conventions for each clause are clear.

The conventions may be cleaned up and coordinated in the next revision when all clauses are open.

SuggestedRemedy

Add a note:

Note: The state diagram conventions described in 55.1.6 apply to all of the state diagrams in this clause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The changes for EEE are governed by the state diagram conventions described in 55.1.6.

Cl **49** *SC* **49.3.6.6** *P* **152** *L* **32** # 33

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Need more specific PICs items for state machines

SuggestedRemedy

Delete item LP-04 & replace with the following lines:

LP-04 - transmit state machine: Support additions to Figure 49-14 for LPI operation : 49.2.13.3
LP-05 - receive state machine: Support additions to Figure 49-15 for LPI operation : 49.2.13.3
LP-06 - LPI transmit state machine : Meets the requirements of Figure 49-16 : 49.2.13.3.1
LP-07 - LPI receive state machine : Meets the requirements of Figure 49-17 : 49.2.13.3.1
LP-08 - LPI transmit timing : Meets the requirements of Table 49-2 : 49.2.13.3.1
LP-09 - LPI receive timing : Meets the requirements of Table 49-3 : 49.2.13.3.1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.7.4.5** *P* **137** *L* **24** # 34

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Need more specific PICs items for state machines

SuggestedRemedy

Replace item LP-01 with:

LP-01 - receive state machine: Support additions to Figure 48-9 for LPI operation : 48.2.6.2
LP-02 - LPI transmit state machine : Meets the requirements of Figure 48-9a : 48.2.6.2.5
LP-03 - LPI receive state machine : Meets the requirements of Figure 48-9b : 48.2.6.2.5
LP-04 - LPI transmit timing : Meets the requirements of Table 48-9 : 48.2.6.2.5
LP-05 - LPI receive timing : Meets the requirements of Table 48-10 : 48.2.6.2.5

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **46** *SC* **46.5.3.3a** *P* **125** *L* **23** # 35

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Need separate PICS items for Rx & Tx direction LPI.

SuggestedRemedy

Change L1:

Assertion of LPI in Tx direction : as defined in Table 46-3

Insert new item:

Assertion of LPI in Rx direction : as defined in Table 46-4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **36** *SC* **36.7.4.9** *P* **83** *L* **24** # 36

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Need more specific PICs items for state machines

SuggestedRemedy

Change PICS to the following items:

LP-01 - Transmit ordered set state machine : Support additions to Figure 36-5 for LPI operation : 36.2.5.2.1
LP-02 - receive state machine: Support additions to Figure 36-7a / 36-7b for LPI operation : 36.2.5.2.2
LP-03 - LPI transmit state machine : Meets the requirements of Figure 36-9a : 36.2.5.2.8
LP-04 - LPI receive state machine : Meets the requirements of Figure 36-9b : 36.2.5.2.8
LP-05 - LPI transmit timing : Meets the requirements of Table 36-3a : 36.2.5.2.8
LP-06 - LPI receive timing : Meets the requirements of Table 36-3b : 36.2.5.2.8

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **36** *SC* **36.2.5.2.6** *P* **79** *L* **5** # 37
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Changes to the base document are not underlined

SuggestedRemedy

Underline changes - lines 5, 29

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **35** *SC* **35.5.3.3a** *P* **70** *L* **15** # 38
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Need separate PICS items for Rx & Tx direction LPI.

SuggestedRemedy

Change L1:

Assertion of LPI in Tx direction : as defined in Table 35-1

Insert new item:

Assertion of LPI in Rx direction : as defined in Table 35-2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3** *P* **112** *L* **11** # 39
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Table reference is wrong - the table numbers have been changed by 802.3av. Also the table heading is wrong.

SuggestedRemedy

Change the instruction and the table heading to match:

"Change Table 45-83 (as renumbered by 802.3av) to add EEE capability register:"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.1** *P* **113** *L* **3** # 40
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Table reference is wrong - the table numbers have been changed by 802.3av. Also the table heading is wrong.

SuggestedRemedy

Change the instruction and the table heading to match:

"Change Table 45-84 (as renumbered by 802.3av) for LPI clock control:"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.2** *P* **114** *L* **10** # 41
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Table reference is wrong - the table numbers have been changed by 802.3av.

SuggestedRemedy

Change the instruction and the table heading to match:

"Change Table 45-85 (as renumbered by 802.3av) for LPI status:"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7** *P* **116** *L* **33** # 42
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Table reference is wrong - the table numbers have been changed by 802.3av.

SuggestedRemedy

Change the instruction and the table heading to match:

"Change Table 45-141 (as renumbered by 802.3av) for EEE AN registers:"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7.13a** *P* **117** *L* **8** # 43
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Table reference is wrong - the table numbers have been changed by 802.3av.

SuggestedRemedy

Change the table reference and the table heading to Table-157a

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.4** *P* **127** *L* **12** # 44
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Code group column is not underlined in new row of Table 48-2.

SuggestedRemedy

Underline all columns of row "Low Power Idle"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.4** *P* **127** *L* **38** # 45
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Code group column is not underlined in new row of Table 48-3.

SuggestedRemedy

Underline all columns of row "Low Power Idle"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.4.2** *P* **128** *L* **3** # 46
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

The additional text in the title is not underlined.

SuggestedRemedy

Underline - "and Low Power Idle (||LPIDLE||)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.6.2** *P* **132** *L* **5** # 47
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Additional information is needed for the note.

SuggestedRemedy

Add the sentence to the note:

"If Low Power Idle is not supported then the transition to the optional state is never true."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.1** *P* **113** *L* **26** # 48
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Clock Stoppable

Refer also to comment #6, rev 1.5

The clock stoppable bit as currently defined is not useful. It is better to split the control into two directions - PHY-MAC & MAC-PHY.

The MAC needs to assert a bit to allow the PHY to stop the clock in the PHY-MAC direction; The PHY needs to assert a bit to allow the MAC to stop the clock in the MAC-PHY direction

SuggestedRemedy

Change register bit 3.0.10 to:

Clock stop enable : 1 = PHY may stop the clock during LPI, 0 = clock not stoppable.

Change the text of 45.2.3.1.3a:

If bit 3.0.10 is set to 1 then the PHY may stop the receive xMII clock while it is signaling low power idle otherwise it shall keep the clock active. If the PHY does not support low power idle signaling or is not able to stop the receive clock then this bit has no effect (see 22.2.2.9a, 35.2.2.9a, 46.3.2.4a).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.2** *P* **114** *L* **34** # 49

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **D**

Clock Stoppable

Refer also to comment #6, rev 1.5

The clock stoppable bit as currently defined is not useful. It is better to split the control into two directions - PHY-MAC & MAC-PHY.

The MAC needs to assert a bit to allow the PHY to stop the clock in the PHY-MAC direction; The PHY needs to assert a bit to allow the MAC to stop the clock in the MAC-PHY direction

SuggestedRemedy

Change register bit 3.1.6 (currently reserved) to:

Clock stop capable : 1 = MAC may stop clock during LPI, 0 = clock not stoppable.

Insert 45.2.3.2.2a after 45.2.3.2.2:

If bit 3.1.6 is set to 1 then the MAC may stop the transmit xMII clock while it is signaling low power idle otherwise it shall keep the clock active. If the MAC does not support low power idle signaling or is not able to stop the receive clock then this bit has no effect (see 22.2.2.6a, 35.2.2.6a, 46.3.1.5a).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **40** *SC* **12.6** *P* **110** *L* **6** # 50

Beckwith, Jonathan UNH-IOL

Comment Type **E** *Comment Status* **D**

"Unfilter jitter in low power mode" should be "Unfiltered"

SuggestedRemedy

Change "unfilter" to "unfiltered"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **7.1** *P* **197** *L* **18** # 51

Beckwith, Jonathan UNH-IOL

Comment Type **E** *Comment Status* **D**

The text "Differential peak-to-peak output voltage (min.) with TX enabled (Vtw)" is confusing.

SuggestedRemedy

Change to "Transmitter activation/deactivation measurement upper threshhold"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
This is actually the lower threshold when the transmitter is enabled.

Cl **71** *SC* **7.1** *P* **203** *L* **16** # 52

Beckwith, Jonathan UNH-IOL

Comment Type **E** *Comment Status* **D**

The text "Differential peak-to-peak output voltage (min.) with TX enabled (Vtw)" is confusing.

SuggestedRemedy

Change to "Transmitter activation/deactivation measurement upper threshhold"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
This is actually the lower threshold when the transmitter is enabled.

Cl **72** *SC* **7.1** *P* **210** *L* **12** # 53

Beckwith, Jonathan UNH-IOL

Comment Type **E** *Comment Status* **D**

The text "Differential peak-to-peak output voltage (min.) relative to active state with TX enabled (Vtw)" is confusing

SuggestedRemedy

Change to "Transmitter activation/deactivation measurement upper threshhold"

Proposed Response *Response Status* **W**

PROPOSED REJECT.
This is actually the lower threshold when the transmitter is enabled.

Cl **72** *SC* **6.11.1.3** *P* **209** *L* **21** # 54

Beckwith, Jonathan UNH-IOL

Comment Type **E** *Comment Status* **D**

I believe "...unused venation blocks..." is a typo.

SuggestedRemedy

Change "venation" to "function"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **40** *SC* **6.1.2.7** *P* **106** *L* **48** # 55

Beckwith, Jonathan UNH-IOL

Comment Type **T** *Comment Status* **D**

In order to determine when a device enters the WAKE state, a trigger signal must be defined. Otherwise, the "65% of nominal idle levels within 700ns" requirement cannot be measured.

SuggestedRemedy

Adopt the TX_TCLK gating approach proposed in healey_01_0409.pdf.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

One critique of healey_01_0409.pdf was that clock gating may easily be delayed to display conformance to the timing requirements even when the underlying implementation does not satisfy the requirements.

This is a subject for Task Force discussion. If it is agreed that there is no means to directly verify an implementation's conformance to these requirements, or infer compliant behavior from other measurements, then a test mode may be warranted.

Cl **70** *SC* **6.5** *P* **195** *L* **38** # 56

Beckwith, Jonathan UNH-IOL

Comment Type **T** *Comment Status* **D**

Need to specify a lower voltage threshhold for the activation time. Deactivation measurement explicitly states 30mV.

SuggestedRemedy

Specify a 30mV threshhold as the beginning of the activation time measurement.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
No justification provided nor is a lower value sepcified. The 30mV threshhold is the transmitter disable voltage used to indicate it is electrically quiet.

Cl **71** *SC* **6.6** *P* **201** *L* **34** # 57

Beckwith, Jonathan UNH-IOL

Comment Type **T** *Comment Status* **D**

Need to specify a lower voltage threshhold for the activation time. Deactivation measurement explicitly states 30mV.

SuggestedRemedy

Specify a 30mV threshhold as the beginning of the activation time measurement.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
No justification provided nor is a lower value sepcified. The 30mV threshhold is the transmitter disable voltage used to indicate it is electrically quiet.

Cl **72** *SC* **6.5** *P* **208** *L* **9** # 58

Beckwith, Jonathan UNH-IOL

Comment Type **T** *Comment Status* **D**

Need to specify a lower voltage threshhold for the activation time. Deactivation measurement explicitly states 30mV.

SuggestedRemedy

Specify a 30mV threshhold as the beginning of the activation time measurement.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
No justification provided nor is a lower value sepcified. The 30mV threshhold is the transmitter disable voltage used to indicate it is electrically quiet.

Cl **49** *SC* **49.2.4.4** *P* **139** *L* **25** # 59

Bennett, Michael LBNL

Comment Type **ER** *Comment Status* **D**

Note: entered on behalf of Jonathan Ebbers, jpebbers@us.ibm.com
802-769-5034 (T/L 446-5034)

Signal scrambler_reset is not listed in the Service primitive from PCS for Energy efficient ethernet support (optional) as displayed in Section 74.5.5. Also this signal does not appear also in Figure 74-1

SuggestedRemedy

remove signal scrambler_reset from Figure 49.4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **74** *SC* **74.7.4.7** *P* **216** *L* **53** # 60

Bennett, Michael LBNL

Comment Type **ER** *Comment Status* **D**

Note: entered on behalf of Jonathan Ebbers, jpebbers@us.ibm.com
802-769-5034 (T/L 446-5034)

Sentence Otherwise fec_block_lock is fec_normal_block_lock OR fec_rapid_block_lock is inaccurate and does not match the behaviour implied by Figure 74-2. On this figure 74-2, transition from false to true of signal fec_rapid_block_lock is used as a trigger to the fec_normal_block_lock state machine. In fact, it is assumed that an other mechanism (as per 2nd paragraph and Note in section 74.7.4.8) will activate the signal fec_rapid_block_lock.

SuggestedRemedy

Remove this sentence

Proposed Response *Response Status* **W**

PROPOSED REJECT.

fec_rapid_block_lock signal generation needs explanation.

Cl **74** *SC* **74.8.3** *P* **220** *L* **7** # 61

Bennett, Michael LBNL

Comment Type **ER** *Comment Status* **D**

In Figure 74-2-FEC Lock state diagram there is a dashed box around fec_rapid_block_lock_edge but there is no note to identify the addition of the variable to support LPI

SuggestedRemedy

Add a note

NOTE: If the optional Low Power Idle function is supported then fec_rapid_block_lock_edge is mandatory

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The variable discription under 74.8.2.2 explains fec_rapid_block_lock_edge.

Cl **70** *SC* **70.2** *P* **195** *L* **3** # 62

Bennett, Michael LBNL

Comment Type **E** *Comment Status* **D**

There is a space missing between 'in' and 36.2.5.1.6

SuggestedRemedy

insert the space

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **1** *P* **226** *L* **7** # 63

Bennett, Michael LBNL

Comment Type **E** *Comment Status* **D**

Please define the acronym LPI after the first instance of Low Power Idle in the paragraph, as was done for Eergy Efficient Ethernet and Media Access Control

SuggestedRemedy

Insert (LPI) between Low Power Idle and mode.

In the next sentence, replace Low Power Idle with LPI.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **1** *P* **226** *L* **16** # 64

Bennett, Michael LBNL

Comment Type **E** *Comment Status* **D**

This paragraph seems verbose and repeats "is/are supported" several times. Why not use a table of supported PHYs instead?

SuggestedRemedy

Replace paragragph with:

The EEE operational mode supports the IEEE 802.3 MAC operation at 100 Mb/s, 1000 Mb/s, and 10 Gb/s. The following PHYs are supported:

100BASE-TX
1000BASE-T
10GBASE-T
1000BASE-KX
10GBASE-KX4
10GBASE-KR

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Suggested remedy will be followed but it does not need a table - an inline list should achieve the same objective

Cl **78** *SC* **78.1.3.3** *P* **230** *L* **21** # 65

Bennett, Michael LBNL

Comment Type **E** *Comment Status* **D**

I think the word 'clause' is missing from the end of the sentence.

SuggestedRemedy

Change the last sentence to:

The actual specification of PHY LPI operation can be found in the respective PHY clause (see Table 78-1).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.4** *P* **231** *L* **36** # 66

Bennett, Michael LBNL

Comment Type **E** *Comment Status* **D**

the apostophe in the title of the table should not be there

SuggestedRemedy

remove the apostophe

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.2.2.21** *P* **164** *L* **35** # 67

Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D**

/I/ is character label, use IDLE.

SuggestedRemedy

Change "/I/ 64B/65B" to "IDLE 64B/65B" in two places in paragraph.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.4a** *P* **165** *L* **36** # 68

Brown, Matt AppliedMicro (AMCC)

Comment Type **E** *Comment Status* **D**

No LDPC frames during Quiet-Refresh. Refer to length in terms of LDPC frame periods.

SuggestedRemedy

Change "LDPC frames" to "LDPC frame periods" in two places in paragraph.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.4a.3** *P* **168** *L* **32** # 69

Brown, Matt AppliedMicro (AMCC)

Comment Type **E** *Comment Status* **D**

Change "when the sleep is detected" to "when the sleep signal is detected".

SuggestedRemedy

Change "when the sleep is detected" to "when the sleep signal is detected".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.4a.3** *P* **169** *L* **7** # 70

Brown, Matt AppliedMicro (AMCC)

Comment Type **E** *Comment Status* **D**

Equations for REFRESH_A/B/C/D is hard to read and somewhat ambiguous.

SuggestedRemedy

Put brackets around "rx_active_pair==PAIR_A/B/C/D".
State that result of equation must be true.
Put equation on new line

Example:

The variable is set to REFRESH_A when
(tx_lpi_active * (tx_active_pair==PAIR_A) * tx_refresh_active)
is TRUE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3.3** *P* **158** *L* **21** # 71

Brown, Matt AppliedMicro (AMCC)

Comment Type **E** *Comment Status* **D**

Not clear whether each end or each direction can go into low power mode independently.

SuggestedRemedy

Change "Each side" to "Each direction".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3.3** *P* **158** *L* **42** # 72

Brown, Matt AppliedMicro (AMCC)

Comment Type **E** *Comment Status* **D**

Signal is framed LDPC not characters.

SuggestedRemedy

Change "composed of IDLE characters" "composed of LDPC frames containing only IDLE characters".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3.3** *P* **159** *L* **8** # 73

Brown, Matt AppliedMicro (AMCC)

Comment Type **E** *Comment Status* **D**

Sentence structure.

SuggestedRemedy

Change:
"The PCS 64/65B Transmit state diagram includes additional states for EEE as specified in Figure 55-15 and Figure 55-15a."
To:
"The PCS 64/65B Transmit state diagram as specified in Figure 55-15 and Figure 55-15a includes additional states for EEE."

AND

Change:
"The PCS 64/65B Receive state diagram includes additional states for EEE as specified in Figure 55-16 and Figure 55-16a."
To:
"The PCS 64/65B Receive state diagramas specified in Figure 55-16 and Figure 55-16a includes additional states for EEE."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.2.2.21** *P* **159** *L* **8** # 74

Brown, Matt AppliedMicro (AMCC)

Comment Type **E** *Comment Status* **D**

Change 64/65B to 64B/65B. Two instances in paragraph.

SuggestedRemedy

Change 64/65B to 64B/65B. Two instances in paragraph.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.2.2.9a** *P* **165** *L* **33** # 75

Brown, Matt AppliedMicro (AMCC)

Comment Type **E** *Comment Status* **D**

Definition incorrectly describes the criteria by which /LI/ characters indicate when to enter low power mode. This is described in 55.1.3.3 as indicated later in the paragraph.

SuggestedRemedy

In first sentence of paragraph, remove: "When preceded by control characters /I/, " and capitalize first letter of "low".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Change 'is requesting a transition to' to 'is requesting operation in' to make it clear that the MAC uses /LP/ to maintain an LP_IDLE state.

Cl **55** *SC* **55.3.2.3** *P* **165** *L* **39** # 76

Brown, Matt AppliedMicro (AMCC)

Comment Type **E** *Comment Status* **D**

Change "an single pair" to "a single pair".

SuggestedRemedy

Change "an single pair" to "a single pair".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.4a.1** *P* **167** *L* **6** # 77

Brown, Matt AppliedMicro (AMCC)

Comment Type **ER** *Comment Status* **D**

Tables 55-1b defines time bounds with complex equations containing fixed value variables. For easy reference and clarity replace variable names with fixed values.

SuggestedRemedy

Replace column 3 for table 55-1b as follows:
Row 1: 60 <= mod(u,128) <= 63
Row 2: mod(u,128) = 60
Row 3: 192 <= u <= 319
Row 4: 320 <= u <= 447
Row 5: 448 <= u <= 551 or 0 <= u <= 63
Row 6: 64 <= u <= 191

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.4a.1** *P* **167** *L* **29** # 78

Brown, Matt AppliedMicro (AMCC)

Comment Type **ER** *Comment Status* **D**

Tables 55-1c defines time bounds with complex equations containing fixed value variables. For easy reference and clarity replace variable names with fixed values.

SuggestedRemedy

Replace column 3 for table 55-1b as follows:
Row 1: 124 <= mod(v,128) <= 127
Row 2: mod(v,128) = 124
Row 3: 0 <= v <= 127
Row 4: 128 <= v <= 255
Row 5: 256 <= v <= 383
Row 6: 384 <= v <= 511

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.4** *P* **174** *L* **24** # 79

Brown, Matt AppliedMicro (AMCC)

Comment Type **ER** *Comment Status* **D**

In Figure 55-15a, in several cases several boolean variable are redundantly equated with boolean values which is out of style with the rest of Clause 55 and adding extra clutter to a crowded SM.

SuggestedRemedy

Replace all instances of:
<variable_name>=true with <variable_name>
<variable_name>=false with !<variable_name>

Example:
Change "tx_lpi_active=false" to "!tx_lpi_active".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **176** *L* **24** # 80

Brown, Matt AppliedMicro (AMCC)

Comment Type **ER** *Comment Status* **D**

In Figure 55-16a, in several cases several boolean variable are redundantly equated with boolean values which is out of style with the rest of Clause 55 and adding extra clutter to a crowded SM.

SuggestedRemedy

Replace all instances of:
<variable_name>=true with <variable_name>
<variable_name>=false with !<variable_name>

Example:
Change "rx_lpi_active=false" to "!rx_lpi_active".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **177** *L* **24** # 81

Brown, Matt AppliedMicro (AMCC)

Comment Type **ER** *Comment Status* **D**

In Figure 55-16b, in several cases several boolean variable are redundantly equated with boolean values which is out of style with the rest of Clause 55 and adding extra clutter to a crowded SM.

SuggestedRemedy

Replace all instances of:
<variable_name>=true with <variable_name>
<variable_name>=false with !<variable_name>

Example:
Change "tx_refresh_active=false" to "!tx_refresh_active".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **48** *SC* **48.2.6.2.5** *P* **135** *L* **3** # 82

Brown, Matt AppliedMicro (AMCC)

Comment Type **ER** *Comment Status* **D**

In Figure 48-9b, comparing boolean variable to boolean value is redundant and out of style for this Clause.

SuggestedRemedy

Change "reset=TRUE" to "reset".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3.3** *P* **158** *L* **47** # 83

Brown, Matt AppliedMicro (AMCC)

Comment Type **ER** *Comment Status* **D**

The link partner is a transmitter.

SuggestedRemedy

Change "This indicates that the link partner is about to enter the low power receive mode." to "This indicates that the link partner is about to enter the low power transmit mode."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.2.3** *P* **170** *L* **16** # 84

Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D** *block_definitions*

LPI wake sends LI or LF (local fault) blocks.
LF blocks are not defined. Another comment requests specification of LF block.

SuggestedRemedy

Change "IDLE control characters" to "IDLE or LF blocks".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See comment #379

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.2.3** *P* **170** *L* **19** # 85
Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D**

Number of LDPC frames is defined by fixed variable specified on another page. To make this definition clear put the value here.

SuggestedRemedy

Change "equal to lpi_wake_time LDPC frames" to "equal to 9 LDPC frame periods".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.2.3** *P* **170** *L* **24** # 86
Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D**

Number of LDPC frames is defined by fixed variable specified on another page. To make this definition clear put the value here.

SuggestedRemedy

Change "equal to lpi_wake_time LDPC frames" to "equal to 9 LDPC frame periods".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.2.3** *P* **170** *L* **26** # 87
Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D**

lpi_tx_wake_timer is not used in Clause 55.

SuggestedRemedy

Remove definition of lpi_tx_wait_timer, lines 25 to 31.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.2.5** *P* **171** *L* **51** # 88
Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D**

Change "tx_ldpc_frame_cnt" to "rx_ldpc_frame_cnt".

SuggestedRemedy

Change "tx_ldpc_frame_cnt" to "rx_ldpc_frame_cnt".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.4** *P* **174** *L* **24** # 89
Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D**

loc_lpi_req, referred to in state TX_WN is not defined in Clause 55. This is probably supposed to refer to tx_lpi_req.

SuggestedRemedy

Change "loc_lpi_req" to "tx_lpi_req".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See identical comment #376

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **174** *L* **36** # 90
Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D**

In Figure 55-15, transition from TX_E due to LI goes to connected labelled "LI".

SuggestedRemedy

Re-label connector to "L".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **176** *L* **8** # 91

Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D**

RX LPI state machine adds extra variables and criteria that are not required and redundant.
Instead incorporate the LPI variables into the Rx 64B/65B state machine.

SuggestedRemedy

In Figure 55-16a...
Change criteria for RX_L-RX_L to "!pma_lpi_active".
Add to RX_L "rx_lpi_active = true".
Change criteria for RX_L-RX_W to "pma_alert_indicate".
Add to RX_W "rx_lpi_active=false".

Delete Figure 55-27a on page 182.

On page 181, lines 10-12, delete sentence "PHY's with the EEE ... Figure 55-27a".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **49** *SC* **49.2.13.2.2** *P* **144** *L* **43** # 92

Brown, Matt AppliedMicro (AMCC)

Comment Type **T** *Comment Status* **D**

Make it clear what to do with scrambler reset if FEC is not in use.

SuggestedRemedy

Add sentence to end of paragraph.
"The PHY shall set scrambler_reset_enable = FALSE if FEC is not in use."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.2.4** *P* **171** *L* **30** # 93

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D** *block_definitions*

LI is specified as including case with either 8 /LI/ or 4x/LI/+4x/I/.
As the state machine in Figure 55-15 is currently defined this allows and requires transition to low power mode if either is detected. Transition to low power mode upon detection of 4x/LI/+4x/I/ should not be permitted. Provision is required to allow for this special case during low power mode in Figure 55-15a.

SuggestedRemedy

Define LII as...
"LII: If the optional Low Power Idle function is supported then LII occurs when the vector contains four /LI/ control characters followed by four /I/ control characters."

Re-define LI as...
"LI: If the optional Low Power Idle function is supported then the LI type occurs when the vector contains eight control characters of /LI/."

In Figure 55-15...

Change the criteria for transition for the following transition to include LII:
TX_C to TX_E
TX_INIT to TX_E
TX_D to TX_E
TX_E to TX_E
TX_T to TX_E

In Figure 55-15a...

Change the criteria for transition from TX_L to TX_L (loop) to "T_TYPE(tx_raw)=(LI+LII)".
Alternately, change the criteria for transition from TX_L to TX_WN to "T_TYPE(tx_raw)=(I+LII)".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **173** *L* **8** # 94

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D** *block_definitions*

LI is specified as including case with either 8 /LI/ or 4x/LI/+4x/I/.
As the state machine in Figure 55-15 is currently defined this allows and requires transition to low power mode if either is detected. Transition to low power mode upon detection of 4x/LI/+4x/I/ should not be permitted. Provision is required to allow for this special case during low power mode in Figure 55-15a.

This comment is a duplicate of one against 55.3.5.2.4.

SuggestedRemedy

Define LII as...
"LII: If the optional Low Power Idle function is supported then LII occurs when the vector contains four /LI/ control characters followed by four /I/ control characters."

Re-define LI as...
"LI: If the optional Low Power Idle function is supported then the LI type occurs when the vector contains eight control characters of /LI/."

In Figure 55-15...

Change the criteria for transition for the following transition to include LII:
TX_C to TX_E
TX_INIT to TX_E
TX_D to TX_E
TX_E to TX_E
TX_T to TX_E

In Figure 55-15a...

Change the criteria for transition from TX_L to TX_L (loop) to "T_TYPE(tx_raw)=(LI+LII)". Alternately, change the criteria for transition from TX_L to TX_WN to "T_TYPE(tx_raw)=(I+LII)".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **174** *L* **12** # 95

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D** *block_definitions*

LI is specified as including case with either 8 /LI/ or 4x/LI/+4x/I/.
As the state machine in Figure 55-15 is currently defined this allows and requires transition to low power mode if either is detected. Transition to low power mode upon detection of 4x/LI/+4x/I/ should not be permitted. Provision is required to allow for this special case during low power mode in Figure 55-15a.

This comment is a duplicate of one against 55.3.5.2.4.

SuggestedRemedy

Define LII as...
"LII: If the optional Low Power Idle function is supported then LII occurs when the vector contains four /LI/ control characters followed by four /I/ control characters."

Re-define LI as...
"LI: If the optional Low Power Idle function is supported then the LI type occurs when the vector contains eight control characters of /LI/."

In Figure 55-15...

Change the criteria for transition for the following transition to include LII:
TX_C to TX_E
TX_INIT to TX_E
TX_D to TX_E
TX_E to TX_E
TX_T to TX_E

In Figure 55-15a...

Change the criteria for transition from TX_L to TX_L (loop) to "T_TYPE(tx_raw)=(LI+LII)". Alternately, change the criteria for transition from TX_L to TX_WN to "T_TYPE(tx_raw)=(I+LII)".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **175** *L* **40** # 96

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D** *Terminate_state_transitions*

In Figure 55-16, there is no exit transition from RX_T due to LI.

SuggestedRemedy

Add transition from RX_T to RX_L with criteria "LI"; use connector labelled "L".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.5.3.5** *P* **182** *L* **29** # 97

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D**

On the slave PHY, it is possible that the Rx is in lower power mode while the Tx is in Normal mode. The frequency drift limitation must also apply to the Tx in this scenario..

SuggestedRemedy

Restate...
"When the transmitter is in the lower power mode or when the receiver is in lower power mode on a SLAVE PHY the transmitter clock short term rate of frequency variation shall be less than 0.1 ppm/second."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.6.2.5** *P* **135** *L* **22** # 98

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D**

Transitions from RX_WAKE and RX_WTF to RX_QUIET will restart quiet timer so realistic failure scenarios can cause undetected failure. One scenario is link partner driver failing or interconnect failure enough to attenuate but not kill the signal.

Instead, the return transition should not restart quiet timer.

SuggestedRemedy

Create new state RX_QUIET_INIT between RX_SLEEP and RX_QUIET.
RX_SLEEP to RX_QUIET_INIT when "signal_detect=FAIL".
RX_QUIET_INIT to RX_QUIET WHEN "UCT"
In RX_QUIET delete "Start rx_tq_timer".
In RX_QUIET_INIT add "Start rx_tq_timer".

The above will permit the dead loop to continue until the quiet timer (3-4 ms) is done then a fault will be detected.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.13.3.1** *P* **149** *L* **25** # 99

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D**

Transitions from RX_WAKE and RX_WTF to RX_QUIET will restart quiet timer so realistic failure scenarios can cause undetected failure. One scenario is link partner driver failing or interconnect failure enough to attenuate but not kill the signal. Another is the Tx taps have changed.

Instead, the return transition should not restart quiet timer.

SuggestedRemedy

Create new state RX_QUIET_INIT between RX_SLEEP and RX_QUIET.
RX_SLEEP to RX_QUIET_INIT when "!signal_ok".
RX_QUIET_INIT to RX_QUIET WHEN "UCT"
In RX_QUIET delete "Start rx_tq_timer".
In RX_QUIET_INIT add "Start rx_tq_timer".

The above will permit the dead loop to continue until the quiet timer (3-4 ms) is done then a fault will be detected.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Because signal_ok requires a recovered clock and energy_detect only requires energy on the line, there is an alternate solution:

Change transition from RX_QUIET to RX_WAKE to "signal_ok"

Thus, the signal must be good enough for a clock to be recovered in order to enter RX_WAKE but must lack enough energy to trigger energy_detect to return to RX_QUIET.

Cl **48** *SC* **48.2.6.2.5** *P* **135** *L* **17** # 100

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D**

In Figure 48-9b, transitions out of RX_SLEEP are ambiguous.

SuggestedRemedy

Change criteria for RX_SLEEP-RX_SLEEP to "||LPIDLE||*!rx_tq_timer_done".Change criteria for RX_SLEEP-RX_ACTIVE to "||IDLE||*!rx_tq_timer_done".
criteria for RX_SLEEP-RX_ACTIVE to "(signal_detect=FAIL)*!rx_tq_timer_done".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete "loop around" transition (it is redundant).

Change ||IDLE|| to ||IDLE||*!rx_tq_timer_done
Change signal_detect=FAIL to (signal_detect=FAIL)*!rx_tq_timer_done

Cl **36** *SC* **36.2.5.2.8** *P* **81** *L* **24** # 101

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D**

In Figure 36-9b, transitions from RX_WAKE and RX_WTF to RX_QUIET will restart quiet timer so realistic failure scenarios can cause undetected failure. One scenario is link partner driver failing or interconnect failure enough to attenuate but not kill the signal. Another is the Tx taps have changed.

Instead, the return transition should not restart quiet timer.

SuggestedRemedy

Create new state RX_QUIET_INIT between RX_SLEEP and RX_QUIET.
RX_SLEEP to RX_QUIET_INIT when "signal_detect=FAIL".
RX_QUIET_INIT to RX_QUIET WHEN "UCT"
In RX_QUIET delete "Start rx_tq_timer".
In RX_QUIET_INIT add "Start rx_tq_timer".

The above will permit the dead loop to continue until the quiet timer (3-4 ms) is done then a fault will be detected.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3.3** *P* **158** *L* **26** # 102

Brown, Matt AppliedMicro (AMCC)

Comment Type **TR** *Comment Status* **D** *LP_IDLE_4+4*

Text specifies that lower power mode begins when one block of all LI characters is received. However, state machine permits transition when block of 4 /LI/ plus 4 /I/ characters is received.

SuggestedRemedy

Disallow transition to lower power mode upon receipt of 4 /LI/ plus 4 /I/.
Method suggested in comment against state machine.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See comment #95

This is part of the editor's state diagram presentation.

Cl **78** *SC* **78.1.3.1** *P* **229** *L* **43** # 103

Chalupsky, David Intel Corp.

Comment Type **E** *Comment Status* **D**

grammar: "starts to asserts"

SuggestedRemedy

replace "starts to asserts" with "starts to assert"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.3.1** *P* **229** *L* **49** # 104

Chalupsky, David Intel Corp.

Comment Type **E** *Comment Status* **D**

grammar: "starts to transmits"

SuggestedRemedy

replace "starts to transmits" with "starts to transmit"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.2** *P* **232** *L* **26** # 105

Chalupsky, David Intel Corp.

Comment Type **E** *Comment Status* **D**

The sentence is unclear. Assume you need a "the" between "time" & "Rx" - that would make it similar to the definition above it at least.

SuggestedRemedy

replace "time Rx" with "time the Rx"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #285

Cl **40** *SC* **40.12.6.1** *P* **111** *L* **9** # 106

Chalupsky, David Intel Corp.

Comment Type **E** *Comment Status* **D**

typo: "Etherrnet"

SuggestedRemedy

change Etherrnet to Ethernet

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.4** *P* **231** *L* **33** # 107

Chalupsky, David Intel Corp.

Comment Type **T** *Comment Status* **D**

The statement "EEE defines a Low Power Idle mode of operation for the following seven 802.3 PHYs" is inconsistent with the remainder of the draft as 10BASE-Te does not have an LPI mode.

SuggestedRemedy

strike "Low Power Idle" from line 33.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will strike "idle" from line 33.

Cl **78** *SC* **78.2** *P* **232** *L* **46** # 108

Chalupsky, David Intel Corp.

Comment Type **T** *Comment Status* **D**

Table 78-2, Tq values for 10GBASE-T: The max value is lower than the min value. I can't provide the correct values, but these appear to be in error.

SuggestedRemedy

Correct Tq max & min for 10GBASE-T.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to #501.

Cl **01** *SC* **1.5** *P* **15** *L* **34** # 109

Chalupsky, David Intel Corp.

Comment Type **T** *Comment Status* **D**

The abbreviation "EEE" is used pervasively throughout this draft before it is defined. Add an abbreviation definition to section 1.5.

SuggestedRemedy

Add an abbreviation definition to section 1.5., i.e.
"EEE Energy Efficient Ethernet"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28C** *SC* **28C.12** *P* **247** *L* **37** # 110

Cobb, Terry Commscope

Comment Type **T** *Comment Status* **D**

If auto-negotiation is mandatory why not make extended next page mandatory.

SuggestedRemedy

Change 28C.12 Message code 10 to extended next page and delete 28C.13.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

(The TF will discuss making Extended Next Pages mandatory, if this is rejected then the following response applies)

The majority of Ethernet PHYs use next page messages and do not support extended next page operation. Therefore 28C.12 is needed for these PHYs.

However, 10GBASE-T PHYs are required to use extended next page operation (and once it is negotiated, they are required to use only extended next pages). Therefore 28C.13 is needed for these PHYs.

Cl **73A** *SC* **73A.4** *P* **249** *L* **33** # 111

Cobb, Terry Commscope

Comment Type **T** *Comment Status* **D**

Bits 47:23 are sent as zeros and could be used to send a 24 bit NIC specific mac address. I assume this part is for message code 11 although the subclause title says message code 10.

SuggestedRemedy

Use registers 2 and 3 in subclause 22.2.4.3.1 to fill in the 24 bits. Use bits 7:0 of register 2 and then 15:0 of register 3. Then add an optional format for the PHY identifier in subclause 22.2.4.3.1 to allow the registers to contain a NIC specific mac address.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* **TOC** *P* **13** *L* **15** # 112

D'Ambrosia, John Force10 Networks

Comment Type **E** *Comment Status* **D**

Unnecessary carriage return for entry for Clause 36

SuggestedRemedy

remove carriage return between Independent and Interface

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This is a machine generated file that gets regenerated every draft. This will get fixed by IEEE professional editorial staff prior to publication.

Cl **00** *SC* **0** *P* *L* # 113

D'Ambrosia, John Force10 Networks

Comment Type **E** *Comment Status* **D**

The "xMII" notation does not cover XGMII and is inconsistent with other places in the draft where "xxMII" is used

SuggestedRemedy

change "xMII" to "xxMII"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.1.1** *P* **16** *L* **21** # 114

D'Ambrosia, John Force10 Networks

Comment Type **E** *Comment Status* **D**

The added note seems to imply an implementation, which seems unncessary, given that there are two distinct PHY types already.

SuggestedRemedy

Delete note.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The note was added in a previous version of the draft to address a reviewer's concern.

Cl **01** *SC* **1.4** *P* **15** *L* **20** # 115

D'Ambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **D**

add definition for "Low Power Idle Mode"

SuggestedRemedy

Low Power Idle Mode - an optional mode intended to save power that may be enabled during periods of low link utilization in which both sides of a link may disable portions of device or system functionality.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.5** *P* **242** *L* **31** # 116

D'Ambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **D**

The first column is labeled PHY type, but the inclusion of the case with the PHY name could cause confusion.

SuggestedRemedy

Create a new column called "CASE" and indicate that there are different CASES for the same PHY type.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **40** *SC* **40.1.3** *P* **84** *L* **16** # 117

D'Ambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **D** *Low Power Idle mode*

This could be confusing, as terminology in Clause 78 is Low Power Idle mode
A 1000BASE-T PHY may optionally enter a low power mode...

This was also found in Clause 55.

SuggestedRemedy

change sentence to
A 1000BASE-T PHY may optionally enter a low power idle mode...

do global replace on low power mode to low power idle mode

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

To be consistent with the capitalization in Clause 78, the term "Low Power Idle mode" will replace the term "low power mode" when referring to Energy Efficient Ethernet.

Cl **69** *SC* **69.1.2** *P* **192** *L* **41** # 118

D'Ambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **D**

P802.3ba will be adding the objective "a 4 lane 40Gb/s PHY. The addition by 802.3az of "Optionally support ENergy Efficient Ethernet will imply that 40GBASE-KR4 will support EEE.

SuggestedRemedy

Change added objective text to
"Optionally support Energy Efficent Ethernet for PHYs that support MAC rates of 10 Gb/s or lower."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **74** *SC* **74.5** *P* **214** *L* **50** # 119

D'Ambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **D**

Proposed changes in 802.3az are only applicable to appropriate PHYs that support MAC rates of 10Gb/s. Proposed changes in 802.3ba are altering Clause 74 to support BASE-R PHYs, which would also include 40Gb/s and 100Gb/s. Therefore, it needs to be clear that the text in 802.3az should only be applied to sections specific to 10GBASE-R PHYs.

SuggestedRemedy

coordination between 802.3az and 802.3ba is necessary.

Add editor's note indicating that changes in 802.3az are only applicable to 10GBASE-R PHYS.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Please refer to Comment response for #9

Cl **40** *SC* **40.1.4** *P* **85** *L* **50** # 120

D'Ambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **D**

The second note to Fig 40-3 reads:
NOTE-Signals and functions shown with dashed lines are optional.

are these dashed lines associated with low power idle mode?
are these lines mandatory if the optional mode is supported?

SuggestedRemedy

Change note to read

NOTE- If optional Low Power Idle mode is supported, signals and functions shown with dashed lines are mandatory.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

All signals and functions shown with dashed lines are associated with Energy Efficient Ethernet.

Change second note in Figures 40-3 and 40-14 and the note in Figure 40-5 to read:
"Signals and functions shown with dashed lines are only required for the optional Low Power Idle mode."

Change the note in Figure 40-4 to read:
"Service interface primitives shown with dashed lines are only required for the optional Low Power Idle mode."

Cl **00** *SC* **0** *P* *L* # 121

D'Ambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **D**

There are references in diagrams in either captions or notes that a diagram or a portion of the diagram is optional or "NOTE-Signals and functions shown with dashed lines are optional."

These diagrams, signals and functions are not optional if LPI is supported.

Found in Clause 40, 48, 74

SuggestedRemedy

Determining a global consisten manner to highlight what it necessary to support LPI is needed.

For notes in drawing change text to

NOTE- If optional Low Power Idle mode is supported, signals and functions shown with dashed lines are mandatory.

Correct captions to indicate Mandatory if optional Low Power Idle mode is supported.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **48** *SC* **48.2.6.2.5** *P* **134** *L* **4** # 122

D'Ambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **D**

There are PIC statements for conformance to the LPI transmit and receive state diagrams, but there is no corresponding SHALL statement in text

SuggestedRemedy

add appropriate SHALL statements.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #455 adds shall statements

Cl **51** *SC* **51.8a.1** *P* **154** *L* **27** # 123

D'Ambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **D**

PICS call out "additional interface variables to support LPI, but no SHALL statement in corresponding text.

SuggestedRemedy

add appropriate SHALL statement

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "includes" to "shall include"

Cl **48** *SC* **48.2.4** *P* **127** *L* # 124

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D**

Table 48-2

When the XGMII TXD is 06 the PCS will also transmit /D20.5/.

SuggestedRemedy

For an XGMII TXD of 06, Change the PCS code group description to "K28.0 or K28.3 or K28.5 or D20.5a".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.4** *P* **127** *L* # 125

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D**

Table 48-3

When the XGMII RXD is 06 the PCS will also receive /D20.5/.

SuggestedRemedy

For an XGMII RXD of 06, Change the PCS code group description to "K28.0 or K28.3 or K28.5 or D20.5a".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.4.2** *P* **128** *L* **44** # 126

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D**

The draft states that "Clock compensation may be performed during Low Power Idle according to the rules described in 48.2.4.2.3" however the rules in 48.2.4.2.3 only allows for the deletion/insertion of ||R|| or Idle.

SuggestedRemedy

Update 48.2.4.2.3 to include the capability to perform clock compensation on 4 Low Power Idle characters or a column containing 3 /R/ and 1 /D20.5/.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.4.2.3** *P* **129** *L* **10** # 127

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

Change "An boolean variable" to "A Boolean variable".

SuggestedRemedy

Change "An boolean variable" to "A Boolean variable".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.4.2.5** *P* **129** *L* **24** # 128

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

Most of the new definitions are for timers not counters.

SuggestedRemedy

Create a subclause for timers.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.6.2.5** *P* **135** *L* # 129

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D**

Figure 48-9b

RX_SLEEP: The rx_tq_timer that is started in this state is defined in 48.2.4.2.5 to be started when the RX_QUIET state is entered not the RX_SLEEP state. Also, the ||LPIDLE|| exit condition from this state that goes back to this state and will cause the timer to be restarted upon each re-entry.

RX_WAKE: The signal_detect=FAIL exit condition does not seem appropiate because it allows the device to receive data or other non-Idle and non-LPIDLE characters while in the RX_WAKE state while signal_detect=OK, only LPIDLE should be received.

SuggestedRemedy

RX_SLEEP: If a timer is intended to be utilized in this state then a rx_ts_timer should be defined.

RX_WAKE: Remove the signal_detect=FAIL exit condition.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The state machine is modified by comment #98.

Update the description in 48.2.4.2.5 to match the modified state machine.

Cl **49** *SC* **49.2.4.7** *P* **140** *L* # 130

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D**

Table 49-1

The encoding from XGMII control codes of 0x06 to 10GBASE-R control codes of 0x07 is inconsistent with the Clause 55 encoding from XGMII control codes of 0x06 to 10GBASE-R control codes of 0x06.

Regarding the 8B/10B cell containing "K28.0 or K28.3 or K28.5 with D20.5 in one row", D20.5 is only included when K28.0 or K28.5 is transmitted.

SuggestedRemedy

Change the encoding from XGMII control codes of 0x06 to 10GBASE-R control codes of 0x06. Also reflect this change on page 139 line 52 and page 141 line 43 (type LI).

Change the cell "K28.0 or K28.3 of K28.5 with D20.5 in one row" to "K28.0 with D20.5 in one row, or K28.3, or K28.5 with D20.5 in one row"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.13.2.3** *P* **141** *L* **32** # 131

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D**

R_BLOCK_TYPE

Bullet a) of Type C currently states "A block type field of 0x1e and eight valid control characters none of which is /E/ and all eight of which are not /LI/ (note that the eight /LI/ characters are only excluded if the optional Low Power Idle function is supported)". The wording "none of which is /E/ and all eight of which are not /LI/" is confusing and can be mis-interpreted (does all eight of which are not /LI/ mean that none are /LI/ or less than 8 are /LI/?). The note "note that the eight /LI/ characters are only excluded if the optional Low Power Idle function is supported" is not necessary because page 138 lines 53/54 states that if the Low Power Idle function is not supperted then Low Power Idle characters will be treated as an error if received.

SuggestedRemedy

Change bullet a) of Type C from "A block type field of 0x1e and eight valid control characters none of which is /E/ and all eight of which are not /LI/ (note that the eight /LI/ characters are only excluded if the optional Low Power Idle function is supported)" to "A block type field of 0x1e and eight valid control characters other than /E/ and where less than eight of the characters are /LI/".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Make the change suggested, but change:

"and where less than eight of the characters are /LI/"

"and, if the optional LPI function is supported, less than eight of the characters are /LI/" (see comment #452)

Cl **49** *SC* **49.2.13.2.3** *P* **142** *L* **52** # 132

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D**

T_BLOCK_TYPE

Bullet a) of Type C currently states "eight valid control characters /O/, /S/, /T/, /E/ and all eight of which are not /LI/ (note that the eight /LI/ characters are only excluded if the optional Low Power Idle function is supported)". The wording "all eight of which are not /LI/" is confusing and can be mis-interpreted (does all eight of which are not /LI/ mean that none are /LI/ or less than 8 are /LI/?).

Type LI is defined as eight /LI/ characters or four /LI/ followed by four /I/ characters, however this is inconsistent with R_BLOCK_TYPE which classifies four /LI/ followed by four /I/ characters as type C.

SuggestedRemedy

Change Bullet a) of Type C from "eight valid control characters /O/, /S/, /T/, /E/ and all eight of which are not /LI/ (note that the eight /LI/ characters are only excluded if the optional Low Power Idle function is supported)" to "eight valid control characters /O/, /S/, /T/, /E/ and where less than eight of the characters are /LI/".

Change the definition of type LI from "If the optional Low Power Idle function is supported then this vector contains eight /LP/ characters, or contains four /LI/ followed by four /I/ characters" to "If the optional Low Power Idle function is supported then this vector contains eight /LP/ characters"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Make the change suggested, but change:

"and where less than eight of the characters are /LI/"

"and, if the optional LPI function is supported, less than eight of the characters are /LI/" (see comment #452)

Cl **49** *SC* **49.2.13.2.2** *P* **144** *L* **49** # 133

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

wake_error_counter should be in the counter subclause not the variable subclause.

SuggestedRemedy

Move wake_error_counter to the counter subclause.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.13.3** *P* **147** *L* # 134

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D**

Figure 49-15

RX_D: There is not an exit condition defined if R_TYPE_NEXT=LI.

RX_E: There is not an exit condition defined if R_TYPE_NEXT=LI.

SuggestedRemedy

RX_D: Modify the exit conditions from RX_D and RX_E states to the RX_T state to "R_TYPE(rx_coded)=T * R_TYPE_NEXT=(S+C+LI)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3.1** *P* **158** *L* **4** # 135

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

The sentence "When the PHY supports EEE the PCS also supports a low power mode" is unnecessary because the PCS is part of the PHY and therefore must support EEE if the PHY does.

SuggestedRemedy

Remove the sentence "When the PHY supports EEE the PCS also supports a low power mode".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3.2** *P* **158** *L* **11** # 136

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

The sentence "When the PHY supports EEE the PMA also supports a low power transmit mode and a low power receive mode" is unnecessary because the PMA is part of the PHY and therefore must support EEE if the PHY does.

SuggestedRemedy

Remove the sentence "When the PHY supports EEE the PMA also supports a low power transmit mode and a low power receive mode".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.4a.1** *P* **166** *L* **24** # 137

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

Type, change maximise to maximize.

SuggestedRemedy

Change maximise to maximize.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.4a.1** *P* **167** *L* # 138

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

Table 55-1b

The value cell for tx_active_pair=PAIR_C incorrectly references v instead of u.

SuggestedRemedy

Change "lpi_offset + 3 x lpi_qr_time <= u < 4 x lpi_qr_time OR 0 <= v < lpi_offset" to "lpi_offset + 3 x lpi_qr_time <= u < 4 x lpi_qr_time OR 0 <= u < lpi_offset"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.2.4** *P* **170** *L* **36** # 139

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D** *block_definitions*

R_BLOCK_TYPE

Bullet a) of Type C currently states "A block_type field of 0x1E and eight valid control characters, none of which are /E/ and, if the low power idle function is supported, all of which are not /LI/ ". The wording "all of which are not /LI/" is confusing and can be mis-interpreted (does all of which are not /LI/ mean that none are /LI/ or less than 8 are /LI/?).

The I type should be it's own type and not a subset of C type, so this will need to be reflected in the C type definition.

SuggestedRemedy

Change bullet a) of Type C to "A block_type field of 0x1E and eight valid control characters other than /E/ and, if the low power idle function is supported, less than eight of the characters are /LI/ and less than eight of the characters are /I/".

Change the definition for type I to remove the references to this type being a sublcause of type C.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

It is not desirable to separate C/I; if this is done then we break the state machine for existing 10GBASE-T PHYs, for which C includes I. Fixing this would complicate the existing state machine substantially.

The wording will be changed to
"A block_type field of 0x1E and eight valid control characters, none of which are /E/ and, if the low power idle function is supported, none of which are /LI/ "

If we choose to separate the text for EEE and non-EEE operation then this proposal should be adopted.

Cl **55** *SC* **55.3.5.2.4** *P* **171** *L* **12** # 140

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D** *block_definitions*

T_BLOCK_TYPE

Bullet a) of Type C currently states "eight valid control characters other than /O/, /S/, /T/, and /E/, and, if the low power idle function is supported, which are not eight /LI/ characters and which are not four /LI/ control characters followed by four /I/ control characters". This is not consistent with the R_BLOCK_TYPE definition which does not allow for LI blocks to contain less than eight /LI/ characters.

The I type should be it's own type and not a subset of C type, so this will need to be reflected in the C type definition.

Type LI is defined as eight /LI/ characters or four /LI/ followed by four /I/ characters, however this is inconsistent with R_BLOCK_TYPE which classifies four /LI/ followed by four /I/ characters as type C.

SuggestedRemedy

Change bullet a) of Type C to "eight valid control characters other than /O/, /S/, /T/, and /E/, and, if the low power idle function is supported, ess than eight of the characters are /LI/ and less than eight of the characters are /I/"

Change the definition for type I to remove the references to this type being a sublcause of type C.

Change the defintion of type LI so that it requires eight LI characters.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accepted in part.
See response to comment #139. We don't want to separate C/I; if we do this we break the state machine for existing 10GBASE-T PHYs, for which C includes I.

At the present time I should remain part of C. If we choose to separate the text for EEE and non-EEE operation then this proposal should be adopted.

Cl **55** *SC* **55.3.5.2.5** *P* **171** *L* **47** # 141

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D**

ldpc_frame_done is not defined

SuggestedRemedy

Define ldpc_frame_done

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Change the text to say

'It is incremented on the first symbol of each LDPC frame'

Also change MDI interface to MDI.

Note ldpc_frame_done is used in Figure 55-16b. Ldpc_frame_done becomes true on the final symbol of each ldpc frame and is reset to false on the next symbol.
The definition will be added to the variable definitions in 55.3.5.2.2

Cl **55** *SC* **55.3.5.4** *P* **173** *L* # 142

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D** *Terminate_state_transitions*

Figure 55-15

In Clause 49 it is valid to transmit LI while exiting the TX_T state, however this is not shown as a valid transition in Clause 55.

SuggestedRemedy

Add an exit condition from TX_T to TX_L if T_TYPE(tx_raw)=LI, and remove type LI in the transition to the TX_E state.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **175** *L* # 143

Estes, Dave UNH - IOL

Comment Type **T** *Comment Status* **D** *Terminate_state_transitions*

Figure 55-16

In Clause 49 it is valid to recieve LI while exiting the TX_T state, however this is not shown as a valid transition in Clause 55.

SuggestedRemedy

Add an exit condition from RX_T to RX_L if R_TYPE(rx_coded)=LI, and add type LI in the transition from state RX_D to RX_T in R_TYPE_NEXT(rx_coded)=(S or C or LI).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **177** *L* # 144

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

Figure 55-16b

Type, change lpdc_frame_done to ldpc_frame_done.

SuggestedRemedy

Change lpdc_frame_done to ldpc_frame_done.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

[note two locations]

Cl **78** *SC* **78.1** *P* **226** *L* **32** # 145

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

Change "and selection best set of parameters" to "and select the best set of parameters"

SuggestedRemedy

Change "and selection best set of parameters" to "and select the best set of parameters"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.3** *P* **233** *L* **5** # 146

Estes, Dave UNH - IOL

Comment Type **E** *Comment Status* **D**

EEE cannot be used in only one direction for 1000BASE-T

SuggestedRemedy

Change "If EEE is supported by both link partners for the negotiated PHY type then the EEE function may be used independently in either direction" to "If EEE is supported by both link partners for the negotiated PHY type then the EEE function may be used independently in either direction, with the exception of 1000BASE-T which requires that both link partners use EEE at the same time"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

While the 1000BASE-T PHY does not support one direction going into LPI independent of the the other direction, it allows one direction to signal LPI to the other independently of the other direction. This means that the system on one end can shut off some of its receive function even thought the PHY may not be in LPI mode in that direction.

Cl **24** *SC* **24.2.4.4** *P* **43** *L* **20** # 147

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

A 100BASE-X PHY that pre-dates P802.3az will not comply with this receive state diagram, because it will not take the branches from states "IDENTIFY JK" and "BAD SSD" of to part B of the diagram.

This will have the effect of making billions of existing 100BASE-TX PHYs not compliant with IEEE Std 802.3. This is a bad thing.

SuggestedRemedy

See my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Frame these two brances to part B with dashed line block and make a note saying: "Optional Implementation"

Cl **24** *SC* **24.2.4.4** *P* **43** *L* **43** # 148

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

This looks like an accidental typo in the receive state diagram, but it demonstrates the kind of inadvertent damage that can be done when significant changes are made to existing specifications.

It appears that there is a mistake in the transition condition from the state "RECEIVE" to the state "DATA". The transition condition in the draft is gotCodeGroup.indicate * rx_bits[9:5] {is not an element of} DATA. I believe that this transition condition should be gotCodeGroup.indicate * rx_bits[9:5] {is an element of} DATA.

SuggestedRemedy

Change the transition condition to be

gotCodeGroup.indicate * rx_bits[9:5] {is an element of} DATA,

and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the transition condition from the state "RECEIVE" to the state "DATA" to

gotCodeGroup.indicate * rx_bits[9:5] {is an element of} DATA,

Cl **24** *SC* **24.2.4.4** *P* **43** *L* **20** # 149

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

Why was the transition condition from the state "CARRIER DETECT" to the state formerly known as "CONFIRM K" changed from rx_bits[9:0]=/I/J/ to rx_bits_[9:0]=1111111000 ? These should be equivalent.

This sort of change obfuscates the real set of changes that are needed to support EEE, and will cause unecessary confusion.

SuggestedRemedy

Change the transition condition back to

rx_bits[9:0]=/I/J/

and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

During the transition from IDLE patterns (5b11111) to SLEEP pattern (5b0000) the receiver will identify a "bits" pattern with 10b1111111000, which is equivalent to /I/J/, due to the serial shift-in operation. That's why in Fig 14-11a the branch condition from CARRIER_DETECT to IDENTIFY_JK (note that the name changed from the original CONFIRM K) is "rx_bits[9:0]=1111111000" instead of misleading "rx_bits[9:0]=/I/J/" even though these two equations are identical in contents. We avoid using /I/J/ because they may not be in correct symbol boundary.

Cl **24** *SC* **24.2.4.4** *P* **43** *L* **17** # 150

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

Why was the transition condition from the state "CARRIER DETECT" to the state "BAD SSD" changed from rx_bits[9:0] {not equal to} /I/J/ to rx_bits[9:0] {not equal to} /I/J ? The trailing slash indicates that /J/ is a code group.

SuggestedRemedy

Change the transition condition back to be rx_bits[9:0] {not equal to} /I/J/

and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The transition condition from the state "CARRIER DETECT" to the state "BAD SSD" is changed from
"rx_bits[9:0] {not equal to} /I/J/ " to
"rx_bits[9:0] {not equal to} 1111111000 ".

Cl **24** *SC* **24.2.4.4** *P* **43** *L* **25** # 151

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

It appears that a single bit error in a /K/ in the SSD /J/K/ can synthesize the sequence rx_bits[9:0] = /I/P/. In the "classic" 100BASE-X receive state machine, this would be counted as a BAD SSD, a packet would be discarded, and life would go on. In this new 100BASE-X receive state machine, it appears that such a single bit error in a /K/ will send the state machine to START_RX_SLEEP.

SuggestedRemedy

May want to consider a more robust transition condition for going to sleep, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The /J/K/ has bits pattern 1100010001.
The /I/P/ has bits pattern 1111100000.

I don't see it possible that any bit error happens in /K/ can cause an mis-interpretation of /I/P/.

Cl **24** *SC* **24.2.4.2** *P* **42** *L* **15** # 152

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

In the transmit state diagram, a bug that I pointed out at the last 802.3 plenary session was addressed by eliminating the transition condition from "IDLE" back to "IDLE" because this transition condition conflicted with the transition from "IDLE" to "TX_SLEEP". The primitive sentCodeGroup.indicate is used to pace the transitions in this diagram so that tx_bits[4:0] gets a value assigned only upon receipt of sentCodeGroup.indicate. Therefore, I would like to see the transition condition from "IDLE" back to "IDLE" restored.

SuggestedRemedy

Add the transition condition

sentCodeGroup.indicate *
TX_EN=FALSE *
(TX_ER=FALSE + (TX_ER=TRUE * TXD[3:0] {is not equal to} TX_LP_IDLE))

from "IDLE" back to "IDLE",

and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The function is equivalent.

Cl **24** *SC* **24.2.4.2** *P* **42** *L* **15** # 153

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The variable tx_quiet is not used by a "classic" 100BASE-X PCS. If a 100 Mbps PHY does not implement EEE (e.g. a 100BASE-FX PHY), then it should not have to set or clear this variable.

SuggestedRemedy

Implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This variable tx_quiet as well as these states TX_SLEEP and TX_QUIET are available and used only if the EEE option is implemented.

Since this part of state machine is enclosed with a dashed block with a note saying optional implementation, it will not be tested by legacy PHY.

Cl **24** *SC* **24.3.4.4** *P* **47** *L* **3** # 154

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The link monitor in a "classic" 100BASE-X PHY should not have to test the variable rx_lpi or lpi_link_fail.

SuggestedRemedy

Implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

A note for this branch condition can be added in the text of line 33 of page 46:

"If LPI mode is not implemented, the rx_lpi has a value of FALSE."

Cl **24** *SC* **24.3.4.5** *P* **48** *L* **22** # 155

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The far-end fault generator in a "classic" 100BASE-X PHY should not have to test the variable rx_lpi.

SuggestedRemedy

Implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

A note for this branch condition can be added in the text of line 37 of page 47:

"If LPI mode is not implemented, the rx_lpi has a value of FALSE."

Cl **24** *SC* **24.4.1** *P* **49** *L* **3** # 156

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

These new service primitives are only relevant for a 100BASE-TX PHY which implements EEE. There is no need to include them in the list of service primitives that must be supported by all 100BASE-X PHYs.

SuggestedRemedy

Implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following sentence at the end of description of each primitive:

"This primitive is implemented only if LPI mode is implemented."

Cl **24** *SC* **24.2.3.4** *P* **41** *L* **8** # 157

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

A "classic" 100BASE-X PHY does not need to implement any of these timers, yet how is a designer or a user of a "classic" 100BASE-X PHY supposed to know this? The set of timers has a very broad range of values, from fractions of microseconds to tens of milliseconds, which implies a non-trivial implementation cost. The amendment should make it clear that a "classic" 100BASE-X PHY is in no way required to implement any of these timers.

SuggestedRemedy

Implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following sentence at the end of description of each timer:

"This timer is implemented only if LPI mode is implemented."

Cl **24** *SC* **24.2.3.2** *P* **40** *L* **21** # 158

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The editing instruction "Insert new variable in the variables list of 24.2.3.2 in alphabetic order as shown below:" indicates that this set of five new variables for EEE will be inserted at various points into the "classic"
list of fourteen variables. None of these five new variables need to be implemented in a "classic" 100BASE-X PHY, yet how is a designer or a user of a "classic" 100BASE-X PHY supposed to know this?

SuggestedRemedy

Implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following sentence at the end of description of each variable:

"This variable is implemented only if LPI mode is implemented."

Cl **24** *SC* **24.2.2.1.1** *P* **38** *L* **27** # 159

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The 00000 code group, defined as /P/ for EEE, will still be an invalid code group for a "classic" 100BASE-X PHY. This amendment should not mandate that devices that have treated 00000 as an invalid code for the last 17 years are suddenly non-compliant.

SuggestedRemedy

Implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Modify the intepretation field of 0000 code group as follows:

SLEEP; Low Power Idle code if LPI mode is implemented and enabled. Otherwise, Invalid code; refer to Table 22-1 and Table 22-2

Cl **25** *SC* **25.3** *P* **52** *L* **40** # 160

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

This is not a problem introduced by EEE or P802.3az. I have submitted a maintenance request on this topic.

The maximum stream size parameter in Table 25-1 is incorrect, and should have been updated by 802.3as frame format extensions.

SuggestedRemedy

I believe that the correct value for maximum stream size is 4018 code-groups. If the task force persists in reproducing this table in the draft amendment, this change should be made. I think that a better solution is to delete the table (see associated comment) and leave it to maintenance to change the parameter.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove the change to Table 25-1. Move the suggested modification of stream size to maintenance.

Cl **25** *SC* **25.3** *P* **52** *L* **25** # 161

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

It is not necessary to reproduce Table 25-1 in P802.3az. It appears that it was included in the draft only for the sake of adding three rows to the end of the table for the three new service primitives introduced by EEE. The purpose of the table, however, is to present a mapping of FDDI terms or concepts into 100BASE-TX terminology. Since there is no comparable mapping of the new service primitives into FDDI terms or concepts, there is no need to include them in the table.

SuggestedRemedy

Delete the table, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove the change to Table 25-1.

Cl **25** *SC* **25.4.11.1.1.1** *P* **54** *L* **4** # 162

Frazier, Howard Broadcom Corporation

Comment Type **T** *Comment Status* **D**

Not allowed to use more than 5 levels of indenture according to IEEE style guide.

SuggestedRemedy

Reduce to 5 levels of indenture.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Remove line 34 of page 55 containing "25.4.11.2.1 State Variables".

Change "25.4.11.2.1.1 variables" to "25.4.11.2.1 State variables - variables".

Change "25.4.11.2.1.2 messages" to "25.4.11.2.2 State variables - messages".

Cl **22** *SC* **22.2.2.2** *P* **27** *L* **25** # 163

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The MII is supposed to be media independent, so why are there references to 100BASE-X receive state machine states associated with normative requirements in Clause 22? The PCS specific material should be deleted from this subclause, and the allowance for a stretched clock period should be re-written in more generic terms.

SuggestedRemedy

Re-write the sentence that was added to the end of 22.2.2.2 in generic terms, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The text does not need to reference PCS specific material. However, restructuring the draft amendment has no effect on the issue.

Delete the added text from "For low power operation." to "nominal clock period."

Change "Following the deassertion
of RX_DV at the end of a frame," to "Following the deassertion of RX_DV at the end of a frame or while the PHY is asserting LPI,"

Note also that this issue is orthogonal to the document restructure suggested by the commenter.

Cl **22** *SC* **22.2.2.4** *P* **27** *L* **45** # 164

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

"Other values of TXD<3:0> shall have no effect upon the PHY"? How does the MAC convey transmit data to the PHY?

SuggestedRemedy

Change the sentence to read "Other values of TXD<3:0> while TX_EN is deasserted and TX_ER is asserted shall have no effect upon the PHY" and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The first part of the remedy solves the issue raised, the second part is irrelevant since the text would have the same wrong effect whether the draft is restructured or not.

The response to comment #195 removes the issue.

Cl **22** *SC* **22.7a.2.3** *P* **32** *L* **15** # 165

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

A state diagram in the MII clause. Wow. Why can't the PHY assert/deassert the CRS signal to indicate when the transmit path is in LPI?

SuggestedRemedy

Take out the state diagram. The 100BASE-TX PHY with LPI should be responsible for asserting and deasserting CRS, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The state machine in the Reconcilliation Sublayer was the cornerstone of the baseline (law_01_1108) that was adopted by the Task Force.

It was considered advantageous to have the control of the PLS_CARRIER.indication in the RS for a number of reasons:

1. It keeps the PHY receive and transmit paths separate (the PHY considers CRS to be part of the receive path).

2. It allows the PHY to go to sleep without having to maintain state & control the wake process.

3. It keeps the "data holdback" function close to the MAC and egress buffers, where it would be implemented in most designs.

4. It frees the PHY from having to participate in the wake time negotiation process (that is controled using LLDP frames).

5. It works for PHYs that operate at speeds greater than 1Gbps, so the same mechanism can be used for all speeds.

The state diagram would be present (or deleted according to the comment) whether the proposed changes to the document are accepted or not.

Cl **22** *SC* **22.7a.2.2** *P* **32** *L* **6** # 166

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The statement "Condition that is true until such time as the power supply for the device that contains the RS has reached the operating region" sounds
pretty vague. What about the L.O.? What about power-on transients?
This is an example of why it is a bad idea to have state machines in the RS/MII clause.

SuggestedRemedy

Move this state machine into the 100BASE-X with LPI PCS annex, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The concept of "power on reset" is well understood by most people who are competent to implement an Ethernet PHY. However, using the name "reset" might cause some confusion.

Add the variable "power_on"
"Condition that is true until such time as the power supply for the device that contains the RS has reached the operating region."
Values: FALSE; The device is completely powered (default).
TRUE; The device has not been completely powered.

Change name of "reset" to "rs_reset" with definition:
"Used by management to control the resetting of the RS"
Values: FALSE; Do not reset the PCS.
TRUE; Reset the PCS.

Change the condition "reset" to "rs_reset + power_on"

See also #165 regarding the use of a state machine in the RS.

Note that this comment has equal validity whether the document structure is preserved or changed.

Cl **22** *SC* **22.2.2.6a** *P* **28** *L* **46** # 167

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

What do the little triangles in Figure 22-6a represent? The figure presents what appears to be a timing diagram that shows the relationship between various logical signals. How does an abstract service primitive fit into a logical timing diagram, and what does a triangle indicate?

SuggestedRemedy

Remove the abstract service primitive from the timing diagram, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The diagram is based on the proposal "law_01_1108" that was adopted as the baseline for this section.

The representation of PLS_CARRIER.indication adds clarity to the diagram without any ambiguity.

This diagram would be present regardless of the document structure chosen.

Cl **22** *SC* **22.2.1.3.2** *P* **26** *L* **12** # 168

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The text as altered reads "The values CARRIER_ON and CARRIER_OFF can be derived from the MII signal CRS and also from the transmit LPI state machine", which is a far different statement from the original, which said "The values CARRIER_ON and CARRIER_OFF are derived from the MII signal CRS."

The "can be ... and also" construction is so ambiguous as to have no meaning.

SuggestedRemedy

Move the transmit LPI state machine into the 100BASE-X PCS with LPI annex, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The response to comment #470 removes the ambiguity and makes the optional nature of LPI clear.

The response to comment #165 addresses the use of the state machine in the RS.

This comment would be unaffected by changes to the structure of document as described.

Cl **22** *SC* **22.2.2.7** *P* **29** *L* **10** # 169

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The sentence "See 22.2.4.4.2 for a description of the conditions under which a PHY will provide a False Carrier indication" is obviously wrong, since 22.2.4.4.2 describes the 1000BASE-X half duplex ability extended status register bit. It looks like this bug was inserted some time ago since it also appears in 802.3-2005.

SuggestedRemedy

Change the cross reference to be 24.2.4.4.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This change cannot be made if the commenter's proposed document restructure takes place.

Cl **22** *SC* **22.7a.2.1** *P* **31** *L* **51** # 170

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The sentence "The notation ++ after a counter indicates it is to be incremented" appears to be superfluous.

SuggestedRemedy

Delete the sentence, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The sentence is superfluous and should be deleted.

The superfluidity of the sentence would be unaffected by any change to the document structure.

Cl **35** *SC* **35.2.2.9a** *P* **69** *L* **10** # 171

Frazier, Howard Broadcom Corporation

Comment Type **ER** *Comment Status* **D**

What does the numeric value "0001" in the middle of Figure 35-9a indicate?
Is it supposed to be the value of the RXD<7:0> bundle? If so, it should be shown as a two digit hexadecimal number.

SuggestedRemedy

Change the value to 0x01 or simply 01, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to 0x01.

The substance of this comment does not seem to be related to the document structure.

Cl **35** *SC* **35.2.2.7** *P* **67** *L* **35** # 172

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D**

The words inserted into the first sentence of the second paragraph of this subclause are unecessary. The subsequent paragraph describes the GMII RX signaling for LPI.

SuggestedRemedy

Delete the words "or assert low power idle" on line 35, and then implement the Suggested Remedy in my general comment concerning the structure of the draft amendment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete the inserted words exactly as suggested.

This content of this comment appears to be unrelated to the structure of the draft.

Cl **00** *SC* **0** *P* *L* # 173

Frazier, Howard Broadcom Corporation

Comment Type **E** *Comment Status* **D**

Strikethru and underscore are used inconsistently throughout the draft, which makes it more difficult to review. Some editors have used underscore for all new material (see Clause 25) and others have used it only when adding material to an existing subclause (see Clause 36).

SuggestedRemedy

Consistent usage of strikethru and underscore would be appreciated.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See response to comment #2

Cl **00** *SC* **0** *P* **1** *L* **1** # 174

Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **D** *doc-structure*

This is a general comment regarding the structure of the draft amendment.

As an amendment to IEEE Std 802.3, the material in this draft will eventually be folded into the base standard. When this happens, the definitions for the 100BASE-X and 1000BASE-X Physical Coding Sublayers will be substantially changed, and the changes will be difficult to discern. The definitions for the MII and GMII will also be substantially changed.

The 100BASE-X and 1000BASE-X PCSs are used for many other port types besides 100BASE-TX and 1000BASE-KX. Among these are 100BASE-FX, 100BASE-LX10, 100BASE-BX10, 1000BASE-SX, 1000BASE-LX, 1000BASE-CX, 1000BASE-LX10, 1000BASE-BX10, 1000BASE-PX10, 1000BASE-PX20, 10G/1GBASE-PRX-D/U1, 10G/1GBASE-PRX-D/U2, and 10G/1GBASE-PRX-D/U3.

These port types are not included in the set of objectives for P802.3az, and the specifications for the PCS and MII for these port types must not be changed or effected in any way by P802.3az. Each of these port types must have a current IEEE Std 802.3 PCS and MII to reference.

SuggestedRemedy

There are many ways to solve this problem. I prefer the following approach:

1. Preserve the definitions for the MII, GMII, 100BASE-X PCS, and 1000BASE-X PCS without change.

2. Define the changes required to support EEE in a set of normative annexes, i.e. Annex 24A for Clause 24, and Annex 25A for Clause 25, etc. Example text for Annex 24A and Annex 25A have been provided by me to the task force chair.

3. Refer to these normative annexes from the body of Clause 78.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to Comment #410

Cl **99** *SC* *P* **1** *L* **51** # 175

Ganga, Ilango Intel

Comment Type **E** *Comment Status* **D**

As per style manual, add email id for IEEE Standards Activities Department (stds.ipr@ieee.org).

SuggestedRemedy

Add email id after IEEE Standards Activities Department (stds.ipr@ieee.org).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* *P* **3** *L* **40** # 176

Ganga, Ilango Intel

Comment Type **E** *Comment Status* **D**

Add the following on page 3:

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SuggestedRemedy

This text is part of IEEE master pages. Use appropriate master page with this background text for the abstract page 3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* *P* **5** *L* **15** # 177

Ganga, Ilango Intel

Comment Type **E** *Comment Status* **D**

Add IEEE 802.3bc, 802.3ba and 802.3-2008/Cor1 to the list

SuggestedRemedy

Insert the following amendments/corrigendum to the list in order:

IEEE Std 802.3bcT-200X
This amendment includes changes to IEEE Std 802.3-2008 and adds Clause 79. This amendment transfers the IEEE 802.3 Organizationally Specific TLVs that were orginally specified in IEEE Std 802.1AB Station and Media Access Control Connectivity Discovery to IEEE Std 802.3.

IEEE Std 802.3-2008T/Cor 1-200X
This corrigendum corrects the PAUSE reaction timing delay value for the 10GBASE-T PHY type.

IEEE Std 802.3baT-20XX
This amendment includes changes to IEEE Std 802.3-2008 and adds Clause 80 through Clause 88 and Annex 83A through Annex 83C, Annex 85A and Annex 86A. This amendment includes IEEE 802.3 Media Access Control (MAC) parameters, physical layer specifications, and management parameters for the transfer of IEEE 802.3 format frames at 40 Gb/s and 100 Gb/s.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* *P* **5** *L* **48** # 178

Ganga, Ilango Intel

Comment Type **E** *Comment Status* **D**

Incorrect link, Fix the URL:

SuggestedRemedy

Update URL and hyper link as follows:
http://standards.ieee.org/reading/ieee/interp/index.html

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* **ToC** *P* **12** *L* **1** # 179

Ganga, Ilango Intel

Comment Type **E** *Comment Status* **D**

Add Title to Table of contents

SuggestedRemedy

Add title: "Contents" to the title of this page

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* **ToC** *P* **14** *L* **47** # 180

Ganga, Ilango Intel

Comment Type **E** *Comment Status* **D**

Per style manual, the ToC entries for Annexes should indicate if the annex is normative or informative with annex titles

SuggestedRemedy

Update the list with the following (see base document for reference):

Annex 28B (normative) IEEE 802.3 Selector base page definition
Annex 28C (normative) Next page Message Code field definitions
Annex 73A (normative) Next page message code field definitions
Annex 74A (informative) FEC block encoding examples

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.6.5** *P* **195** *L* **27** # 181

Ganga, Ilango Intel

Comment Type **E** *Comment Status* **D**

Show only changes from base text by underline or strikethrough in this subclause and elsewhere in Clauses 70, 71, 72.

For example in 70.6.5 first paragraph, "optional" is already in the base text and hence should not be underlined.

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **74A** *SC* **74A.5** *P* **250** *L* **47** # 182
Ganga, Ilango Intel

Comment Type **E** *Comment Status* **D**

Also update table numbering for Annex 74A. Should be 74A-1 etc., also underline the subclause title 74A.5

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3** *P* **112** *L* **16** # 183
Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **D**

The table 45-83 and other tables in Clause 45 have been modified by P802.3ba. So the editing instructions should include the appropriate source document where the source is other than IEEE Std 802.3-2008. Also the table numbers should be changed to indicate the latest renumbered table numbers from previous amendment(s).

Also other PCS registers have been modified by the P802.3ba document (or other amendments e.g. P802.3av). So update the editing instructions and the change text as per the draft P802.3ba/D2.2.
For example change editing instruction as follows:
45.2.3.1 PCS control 1 register
Change Table 45-83 (IEEE P802.3ba/D2.2) for LPI clock control:
Update the table such that the base text is from the above source.

SuggestedRemedy

Update the Editing instrucitons and Table numbers to indicate appropriate source for base text and use the renumbered table number from appropriate amendment to 802.3-2008. Also update the base text as appropriate as per the source document (for example IEEE P802.3ba/D2.2).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comments #39, 40, 41, 42, 43

Cl **74** *SC* **74.5** *P* **214** *L* **12** # 184
Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **D**

Underline new primitive defined in item e) RX_LPI_ACTIVE

Also subclause numbering and Figure numbers for functional block diagrame are incorrect. Update the numbering as per the base spec (for example 74.0.1 should be 74.4.1 and Figure 74-1 should be Figure 74-2).

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Please refer to comments
364 and 8

Cl **74** *SC* **74.7** *P* **216** *L* **22** # 185
Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **D**

Clause 74 is also being amended by P802.3ba. So where appropriate update the editing instructions to indicate the approprate base text (IEEE Std 802.3-2008 or P802.3ba/D2.2).

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Please refer to #9

Cl **69** *SC* **69.1.1** *P* **192** *L* **1** # 186
Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **D**

Clause 69 is also being amended by P802.3ba. Update the editing instructions and base text to indicate appropriate source (IEEE Std 802.3-2008 or P802.3ba).

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
There doesn't appear to be any conflicting or overlapping changings. But editor will add editor's note to indicate P802.3ba may also affect clause 69.

Cl **70** *SC* **70.6.5** *P* **195** *L* **24** # 187

Ganga, Ilango Intel

Comment Type **T** *Comment Status* **D**

The PMD transmit disable function was previously controlled only by the PMD_transmit_variable, however when energy efficient Ethernet is supported the PMD transmit disable function is also controlled by the PMD_TXQUIET.request primitive (both TX disable variable and the tx_quiet signal). This information should be added to item d.

Also move the timing requirement to a separate item e.

SuggestedRemedy

If Energy Efficient Ethernet is supported, the PMD_transmit_disable function is controlled by the PMD_transmit_disable variable and the tx_quiet signal. When PMD_transmit_disable variable is set to ONE or tx_quiet signal is set to TRUE the transmit disable function shall turn off the transmitter such that the differential peak-to-peak output voltage is less than 30mV. When the PMD_transmit_disable variable is set to ZERO or the tx_quiet signal is set to FALSE the PMD_transmit_disable function shall turn on the transmitter such that the differential peak-to-peak output voltage is greater than 800mV (see Table 70-4).

e. When the PMD transmit disable function is controlled by the tx_quiet signal the Transmiter shall be turned off within 500ns from the tx_quiet signal set to TRUE and the transmitter shall be turned on within 500ns from the tx_quiet signal set to FALSE (see Table 70-4).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **71.7.1** *P* **203** *L* **19** # 188

Ganga, Ilango Intel

Comment Type **TR** *Comment Status* **D**

Differential peak to peak output voltage min and max have been already defined in 71.7.1.4 (see items 1 & 2). The TX is driven when Transmit function is enabled. Why is mininum defined again in Table 71-4? If the objective is to unambiguously specify the value when TX is enabled then update the table to have two separate line items to specify both min (800mV) and max values (1200mV) and specify any relevant changes w.r.t EEE in 71.7.4.1 (define VTQ and VTW in 71.7.1.4) and provide a reference to these values in other sections or tables that reference this subclause.

The new changes need to be underlined.
Underline (VTQ) on line 19

The terms VTQ, VTW, TTD, TTA are specified in the table but the terms have not been defined elsewhere in the text, so define the terms in the corresponding/referenced subclauses (for example define in 71.7.1.4).

This comment also applies to subclauses and tables Clauses 70 and 72. Make appropriate changes to Clauses 70 and 72.

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.
71.7.1.4 is for test patterns. The EEE just modifies the existing Table 71-4. I believe it should say "peak-to-peak output voltage range with TX enabled"

Cl **72** *SC* **72.6.4** *P* **207** *L* **26** # 189

Ganga, Ilango Intel

Comment Type **TR** *Comment Status* **D**

Clause 72 supports digital signal detect mechanisms. Analog signal detect (or energy detect) was not part of this clause as it was felt that robust analog signal detect functions are difficult to define/implement in the backplane environment. (see thaler_01_0505.pdf, minutes_01_0505.pdf). Hence define a suitable digital signaling mechanism to exit from the low power idle state.

SuggestedRemedy

As per comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.
It doesn't specifically call out analog signal detect. The receiver is just required to wake up within a certain time after detecting the electrical energy on the diff signal pair from a compliant, enabled transmitter.

Cl **00** *SC* **0** *P* **1** *L* **25** # 190

ghiasi, ali Broadcom

Comment Type **TR** *Comment Status* **D** *doc-structure*

EEE is modifying some of the earlier 802.3 clauses adding optional EEE/LPI support, some of the state diagram are getting too complicated to know what is required and what is added for EEE

SuggestedRemedy

Propose to duplicate the state diagram in earlier clauses instead of changing them so it is clear what is optional EEE

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #410

Cl **55** *SC* **55.3.5.2.4** *P* **170** *L* **37** # 191

Grimwood, Michael Broadcom

Comment Type **E** *Comment Status* **D**

In R_BLOCK_TYPE, there are 7 types enumerated, not 5.

SuggestedRemedy

Change "five types" to "seven types".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.5.2.4** *P* **171** *L* **13** # 192

Grimwood, Michael Broadcom

Comment Type **E** *Comment Status* **D**

In T_BLOCK_TYPE, there are 7 types enumerated, not 5.

SuggestedRemedy

Change "five types" to "seven types".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.1** *P* **113** *L* **26** # 193

Grimwood, Michael Broadcom

Comment Type **T** *Comment Status* **D**

Implement clock stoppable changes that were agreed upon at July Plenary.

SuggestedRemedy

Define bit 3.0.10 to enable the PHY to stop the receive clock. Appropriately change Table 45-2 and 45.2.3.1.3a with the new definition.

Allocate an existing reserved status bit and appriately define it to indicate whether the PHY is capable of handling a stopped transmit clock. Change the appropriate Table entry for this bit and add a new section describing this bit. In this new section explicitly define the behavior of the PHY if it does not support LPI or is not able to handle the MAC/LPI Client stopping the xMII clock with the following sentence:

"If the PHY does not support low power idle signaling or is not able to handle a stopped transmit xMII clock, then it shall clear this bit to 0."

Related to the two newly-defined bits, corresponding changes are needed in the following places in the draft: 22.2.2.9a, Table 40-3, 35.2.2.6a, 35.2.2.9a, 46.3.1.5a, and 46.3.2.4a.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comments #48, 49

Cl **55** *SC* **55.3.2.2.9a** *P* **163** *L* **40** # 194

Grimwood, Michael Broadcom

Comment Type **T** *Comment Status* **D**

The specification is not explicit with respect to how /LI/ characters are treated when low-power idle is not supported.

This leads to ambiguity in Section 55.3.5.2.4 (pp 170-171) with respect to whether R_BLOCK_TYPE and T_BLOCK_TYPE are of type C or E when low power idle is not supported and one or more /LI/ characters are present.

SuggestedRemedy

Add the following sentence to the end of the paragraph:
If low power idle is not supported, then /LI/ is not a valid control character.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.2.2.4** *P* **27** *L* **42** # 195

Grow, Robert Intel

Comment Type **ER** *Comment Status* **D**

Awkard and possibly misleading text.

SuggestedRemedy

The PHY shall interpret the combination of TX_EN deasserted, TX_ER asserted and TXD<3:0> equal to 0001 shown in Table 22-1 as a request to enter, or remain in low power idle. Other values of TXD<3:0> with this combinition of TX_EN and TX_ER shall have no effect upon the PHY.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Also change in the same style as suggested by comment #479

"If the optional LPI function is supported,the RS shall use the combination of TX_EN deasserted, TX_ER asserted and TXD<3:0> equal to 0001 shown in Table 22-1 as a request to enter, or remain in low power idle. Other values of TXD<3:0> with this combinition of TX_EN and TX_ER shall have no effect upon the PHY."

Cl **00** *SC* **0** *P* **27** *L* **50** # 196

Grow, Robert Intel

Comment Type **ER** *Comment Status* **D**

The style manual 21.2.1 isn't followed for numbering inserts, where for example, 22.2.2.6A would follow 22.2.2.6, it doesn't precede it and the draft insert instructions do not indicate a convention other than that of the style manual.

SuggestedRemedy

Don't insert a TX subclause in the middle of receive subclauses. If the style manual convention is being used, what is currently 22.2.2.6a should be 22.2.2.5A. If not following the style manual all change instructions need to be clear about the insertion point. Fix all inserts consistently.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **78** *SC* **78.1.2.1.2** *P* **228** *L* **18** # 197

Grow, Robert Intel

Comment Type **ER** *Comment Status* **D**

Primitives are not signals, and as I recall, timing requirements can't be placed on the primitive, only on the layers causing generation of a primitive.

SuggestedRemedy

Needs thought and proper specification on the timing in multiple places in the standard.

All text (e.g., assert and deassert functions) related to service primitives needs to be reviewed for any language that reflects continuous visibility of a primitive value between (sub)layers to only a change in value being signaled by a primitive.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

For discussion by the task force.

Cl **78** *SC* **78.1.4** *P* **231** *L* **30** # 198

Grow, Robert Intel

Comment Type **ER** *Comment Status* **D**

Bad subclause title, though some of the PHY types may have been defined in an amendment, they are all part of one standard IEEE Std 802.3. Also, bad table title.

SuggestedRemedy

78.1.4 Supported PHY types
Table 78-1 -- Specifications for Energy Efficient Ethernet PHY types

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.1.1.2** *P* **17** *L* **40** # 199

Grow, Robert Intel

Comment Type **TR** *Comment Status* **D**

The standard footnote that the 1995 Class D requirement is met by 2001 Class D should be included.

SuggestedRemedy

Add footnote.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.2.1.3.2** *P* **26** *L* **12** # 200

Grow, Robert Intel

Comment Type **TR** *Comment Status* **D**

We don't have state machines in the standard, we have state diagrams, and I believe the LPI operation is split into the LPI assert and detect functions (at least in Clause 78). The text is also not properly marked ('can be' is not underscore). There is no reason to weaken the statement from an "are" to a "can be".

SuggestedRemedy

The values CARRIER_ON and CARRIER_OFF are derived from the MII signal CRS and if implemented the LPI assert function (78.1.3).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The values CARRIER_ON and CARRIER_OFF are derived from the MII signal CRS and the LPI assert function if the optional LPI signaling is supported (see 22.7a.2).

Cl **35** *SC* **35.2.1** *P* **65** *L* **33** # 201

Grow, Robert Intel

Comment Type **TR** *Comment Status* **D**

I can't figure out what the last sentence is trying to specify. It also seems that the edits treat service primitives as logic signals. Service primitives are not logic signals, they are events and therefore can't remain in any state. Though the value sent in a primitive may have state, the primitive is only generated when the value changes state. So, it may not be best to use the term set in earlier sentences either.

SuggestedRemedy

If I understand the intent right, the following would be more accurate, though I don't believe there is a way to put timing requirements in the service primitives, (only in the layers that cause generation of the primitive) so the following isn't correct either (this needs thought and work):

An LPI_IDLE.request primitive with value ASSERT shall not be generated unless the attached link is operational (i.e. link_status = OK, according to the underlying PCS/PMA). The PHY shall not cause an LP_IDLE.request primitive with value ASSERT to be generated for at least one second following a link_status change to OK.

A similar problem exists in 46.1.7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accept the suggested remedy for this clause. Make a similar change for 46.1.7.

Also add a reference to 78.1.2.1.2.

Cl **78** *SC* **78.1.2.1.4** *P* **228** *L* **26** # 202

Grow, Robert Intel

Comment Type **TR** *Comment Status* **D**

Is signaling of LPI between an RS and its link partner, or between the RS and the lower parts of the PHY? If the PHY has no option to signal the request, then the language is appropriate, but it seems inconsistent with MII text describing the xMII signals. The effect of the primitive is to generate signals on the MII and that isn't specified here, but should be.

SuggestedRemedy

Assure MII clause are consistent in what layer is signaling to what peer layer, and that any additional requirements on conveying the LPI request in lower sublayers is properly represented. Add generic text that covers the three MII types -- how the assert or deassert is signaled, can probably be generic using the MII definition of assert low power idle.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The PHY has no option to signal the request so the language is appropriate however editor will look into adding clarifying text as in the suggested remedy.

Cl **78** *SC* **78.1.2.1** *P* **228** *L* **47** # 203

Grow, Robert Intel

Comment Type **TR** *Comment Status* **D**

When generated is too generic.

SuggestedRemedy

The primitive is generated because of a change from something (xMII normal Idle to assert low power idle) and vise versa.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Adopt suggested remedy with editorial licence to clear typos/gramatical errors.

Cl **99** *SC* *P* **15** *L* **7** # 204
Grow, Robert Intel

Comment Type **E** *Comment Status* **D**

This is really old and in fact inaccurate (there are four editing instructions, not three).

SuggestedRemedy

Replace with current NOTE -- as found on page 35 of the style manual. The additional paragraphs are acceptable, though if any base text needs to reference another amendment, the first paragraph needs to be updated to indicate that unless otherwise indicated in the editing instructions, base text comes from IEEE Std 802.3-2008.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.5** *P* **15** *L* **34** # 205
Grow, Robert Intel

Comment Type **E** *Comment Status* **D**

Incorrect style.

SuggestedRemedy

The acronym should be in lower case "low power idle" unless consistently used as a proper noun throughout the draft. (I don't think capitalization is consistent.)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will be capitalized consistently but recommend use of Capitals as this term has a specific meaning beyond what is implied by just the English phrase.

Cl **00** *SC* **0** *P* *L* # 206
Grow, Robert Intel

Comment Type **E** *Comment Status* **D**

The draft contains far more text than considered appropriate for publication. For example it is very typical to say change the nth paragraph as follows and not include the complete subclause as seems to be the case for much of this draft. In some clauses the the changes instructions are written for the smaller volume of text and others not.

SuggestedRemedy

Either remove superflous text (my preference) or include Editor's Note (to be removed prior to publication) that indicates that more base text than is required for publication is included for convienence of review and will be removed during publication preparation.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **Figure 22-6a** *P* **28** *L* **45** # 207
Grow, Robert Intel

Comment Type **E** *Comment Status* **D**

I'm uncomfortable with mixing two sides of the RS in the figure

SuggestedRemedy

Remove the PLS_CARRIER.indication line for consistency with other figures.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The "mixing two sides of the RS" is fundamental to the behavior because the PLS_CARRIER.indication is being derived from the state of the transmit control/data signals.

Cl **00** *SC* **0** *P* *L* # 208
Grow, Robert Intel

Comment Type **E** *Comment Status* **D**

Though the style manual could be more clear, the base document generally uses the form '(see 35.2.1)' not the square form(s) used on this draft.

SuggestedRemedy

Replace square brackets with parenthesis, use the prevaling format consistently. Some examples (not an exhaustive list) that should be fixed include P. 30, L. 5, 6, and P. 68, L. 50, 51 and P. 122, L. 13.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* *L* # 209
Grow, Robert Intel

Comment Type **E** *Comment Status* **D**

Inconsistent format for MII data signals. For example, TXD<3:0> or TXD <3:0>. It doesn't look like the base document is consistent either.

SuggestedRemedy

Consult with the WG Chair on prefered format, request he put it on the list of things that could be fixed in a future revision, and used the prefered format throughout.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

David Law to recommend whether a space will be put between the alphabetic part and the <

Cl **78** *SC* **78.1** *P* **226** *L* **17** # 210

Grow, Robert Intel

Comment Type **E** *Comment Status* **D**

signaling schemes?

SuggestedRemedy

Change to: two PHY types, also change line 19 signaling systems to PHY types. Change other descriptions of PHY types as signaling schemes or signaling systems accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to Comment #64 which rewrites the same paragraph

Cl **78** *SC* **78.1.2.1.1** *P* **228** *L* **5** # 211

Grow, Robert Intel

Comment Type **E** *Comment Status* **D**

Anthropomorphism ('wishes'). Not the only occurance.

SuggestedRemedy

...to indicate to the PHY to start or stop... Rewrite other uses of wishes.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.2.1.1** *P* **228** *L* **12** # 212

Grow, Robert Intel

Comment Type **E** *Comment Status* **D**

Primitive and value are separated by a space.

SuggestedRemedy

LP_IDLE.request (LPI_REQUEST), also similar on line 39.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* *P* **4** *L* **19** # 213

Grow, Robert Intel

Comment Type **ER** *Comment Status* **D**

Comments on similar front matter have been recommended to the WG Chair for acceptance. For example, this statement about the historical listing of projects is appropriate for the base standard, but not for amendments.

SuggestedRemedy

Assure front matter is current before beginning Sponsor ballot.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

David Law to provide most current front matter for ammendments.

Cl **00** *SC* **0** *P* *L* # 214

Grow, Robert Intel

Comment Type **ER** *Comment Status* **D**

This draft uses the term 'state machine' extensively. This term is not generally used in the base standard. In general an implementation may have a state machine, but we have state diagrams, functions, etc.

SuggestedRemedy

Search and replace 'state machine" with appropriate terminology.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* *P* *L* # 215

Grow, Robert Intel

Comment Type **ER** *Comment Status* **D**

In general, the clause is edited only for 100 Mb/s operation, yet the MII is defined for both 10 and 100 Mbps operation. Text specific to 100 Mb/s operation has to be identified as that.

SuggestedRemedy

P. 27, L. 25 - change to indicate for 100 Mb/s operation. Fix any others I may not have found.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

P.25, l.12 add (before "The definition of") "LPI signaling is specified for 100Mb/s operation."

p.30, l.41 add (at the end of the paragraph) "LPI signaling is specified for 100Mb/s operation."

Cl **74** *SC* **74.0.1** *P* **213** *L* **28** # 216

Gustlin, Mark Cisco

Comment Type **T** *Comment Status* **D**

Why isn't the signal scrambler_reset shown in figure 74-1?

SuggestedRemedy

Add it.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.4.7** *P* **139** *L* **52** # 217

Gustlin, Mark Cisco

Comment Type **T** *Comment Status* **D**

In the following statement, the (0x07) can be confusing, since we don't know if it refers to the XGMII or 10GBASE-R code, and the XGMII code for Idle is also 0x07.

To communicate Low Power Idle, low power idle control character /LI/ (0x07) is sent continuously in place
of /I/.

SuggestedRemedy

Change to:

To communicate Low Power Idle, low power idle control character /LI/ is sent continuously in place of /I/.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.9** *P* **141** *L* **16** # 218

Gustlin, Mark Cisco

Comment Type **T** *Comment Status* **D**

I belive the reference should be to 49-17, not 49-15?

SuggestedRemedy

Change the reference to 49-17.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **49** *SC* **49.1.5** *P* **138** *L* **26** # 219

Gustlin, Mark Cisco

Comment Type **T** *Comment Status* **D**

This clause is not consistent with what it calls the low power option. Here is is Energy Efficient Ethernet, elsewhere it is called Low power idle. I think it would be good to be consistent, stick with one or the other when calling out the optional functions.

SuggestedRemedy

As above.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "Energy Efficient Ethernet" to "LPI" to be consistent with other subclauses.

Cl **49** *SC* **49.2.13.2.5** *P* **145** *L* # 220

Gustlin, Mark Cisco

Comment Type **T** *Comment Status* **D**

This statment is confusing:

"Change Figure 49-14 for LPI transmit state diagram and 49-15 for LPI receive state diagram"

Does it refer to the transmit state diagram (49-14) and recieve (49-15), or the LPI transmit state diagram (49-16) and the LPI receive state diagram (49-17)?

SuggestedRemedy

Clarify the statement accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #455 clarifies.

Cl **36** *SC* **36.2.5.1.5** *P* **73** *L* **9** # 221

Gustlin, Mark Cisco

Comment Type **T** *Comment Status* **D**

The term broken seems strange in this statement:

The rx_wf_timer allows the receiver an additional period in
which to synchronize or return to the quiescent state before the link is declared broken.

Should it be declared down or some other term?

SuggestedRemedy

As above.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

There are three instances:
Clause 36, page 73
Clause 48, page 129
Clause 49, page 145

Change to

"...quiescent state before a link failure is indicated"

Cl **49** *SC* *P* *L* # 222

Gustlin, Mark Cisco

Comment Type **T** *Comment Status* **D**

This statement is confusing:

If the optional Low Power Idle function is implemented the transmit and receive functions are modified as shown in Figures 49-16 and 49-17.

The transmit and recieve functions are specified by 49-14 and 49-15, clarify this statement.

SuggestedRemedy

As above

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #455 covers this

Cl **49** *SC* **49.2.6** *P* **141** *L* **1** # 223

Gustlin, Mark Cisco

Comment Type **TR** *Comment Status* **D**

It seems to me that resetting the scrambler to all 0s each time the link comes out of LPI is dangerous and will allow malicious users to send killer packets. The original scrambler for 10GE was chose as a very long polynomial to prevent attacks.
Walker's presentation shows a Mean Time to Jamming of 29 years, but that is without resetting the scrambler.
http://grouper.ieee.org/groups/802/3/10G_study/public/jan00/walker_1_0100.pdf

When you reset the scrambler often, that means someone could construct a packet to reverse the scrambler, and if this packet is sent immediately after LPI for instance, it could reverse the scrambler and bring down the link.

SuggestedRemedy

Either find another way to sync up the FEC after LPI or do an analysis that shows the possibility of jamming the scrambling even though it is being reset is not significant.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Scrambler_reset is no longer needed by the FEC sublayer.

Delete scrambler_reset and all associated specifications.

Cl **49** *SC* **49.2.13.3.1** *P* **148** *L* **3** # 224

Gustlin, Mark Cisco

Comment Type **TR** *Comment Status* **D**

It would help to put in a text description of the behavior of each state machine, 49-16 and 49-17, what is each SM accomplishing at a high level.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #455 may satisfy this.

Cl **22** *SC* **22.2.2.9a** *P* **30** *L* **4** # 225

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"While the PHY device is indicating low power idle it may halt the RX_CLK at any time more than 9 clock" ism issing a comma (?).

SuggestedRemedy

Change to "While the PHY device is indicating LPI, it may halt the RX_CLK at any time more than 9 clock"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.7a** *P* **30** *L* **38** # 226

Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **D**

"Low Power Idle" or "low power idle" - pick one and be consistent with it. Also consider one of the previous comments which suggest the use of LPI which was already defined in this draft.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #260 resolves this.

Cl **22** *SC* **22.7a.1** *P* **31** *L* **30** # 227

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"The link partner is operating with normal idle behavior" - what is a 'normal idle' in this case? It is not defined anywhere and seems like a strange construct. Can it be replaced with something like "The link partner is in normal operating mode"
There are other occurences of this text string below.

SuggestedRemedy

Per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "normal idle" to "normal inter-frame" to match the contents of Tables 22-1 & 22-2.

Cl **22** *SC* **22.7a.1** *P* **31** *L* **37** # 228

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"The system wishes to operate with normal idle behavior (default)." - what is 'the system' ? This concept is not known / defined in 802.3

SuggestedRemedy

Either define what this 'system' is or rewrite the sentence to identify what the agent responsible for the decision to enter the LPI mode is. Is this an LPI client? How is this client located relative to MAC?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the semantics definition to match 78.1.2.1.2

Cl **22** *SC* **22.7.3.4a** *P* **33** *L* **37** # 229

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

Item L7 contains 'shall' - what for?

SuggestedRemedy

Change "RS shall continue to indicate" to "RS continues to indicate". Shall is not needed in the PICS already. Item feature is a description of the function only.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **24** *SC* **24.1.1** *P* **34** *L* **8** # 230

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D** *230*

"When a transmitting station of a link with this capability does not need the full bandwidth, the LPI agent can put the local PHY transmitter and the link partner's receiver into low power idle mode to conserve energy". The idea that I got from EEE proceedings is that EEE is about energy conervation and not about 'needing / not needing full bandwidth'. This sentense confuses cause and effect.

SuggestedRemedy

"When a transmitting station of a link with this capability detects conditions, under which the link remains idle for extended period of time, the LPI agent can put the local PHY transmitter and the link partner's receiver into LPI mode to conserve energy". - it is just an attempt to capture the thought. The facts which should be reflected (i) what matters for EEE is that the link is idle for extended period of time, and (ii) LPI agent then puts the Tx PHY and Rx PHY in peer into LPI mo de. The original sentence talks about bandwidth as if the LPI agent was controlling / observing bandwidth useage.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The entire 24.1.1 Scope is rewritten as follows:

"The 100BASE-X may support the capability of Energy Efficient Ethernet as described in Clause 78. When a transmitting station of a link with this capability detects low link utilization, the local PHY transmitter can enter LPI mode and send appropriate symbols over the link. Upon receiving and decoding those symbols, the link partner's receiver can enter LPI mode. The transmit and receive paths can enter and exit low power states independently. Energy is conserved by deactivating the corresponding functional blocks of individual path. From all 100BASE-X PHYs, only 100BASE-TX supports this optional capability."

Cl **24** *SC* **24.1.1** *P* **34** *L* **11** # 231

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D** *230*

"Energy is conserved by deactivating some or all functional blocks." - blocks in what exactly? In Tx PHY and Rx PHY in the peer? If so, state that clearly.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Rewrite this statememnt and the next sentence as follows:

"The transmit and receive paths can enter and exit low power states independently. Energy is conserved by deactivating the corresponding functional blocks of individual path."

Cl **24** *SC* **24.1.1** *P* **34** *L* **13** # 232

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D** *230*

Strange language in "The only 100BASE-X PHY that supports this capability is 100BASE-TX" - it seems easier to say "From all 100BASE-X PHYs, only 100BASE-TX supports this capability".

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the statement to:

"From all 100BASE-X PHYs, only 100BASE-TX supports this optional capability"

Cl **24** *SC* **24.1.2** *P* **34** *L* **33** # 233

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D** *233*

point g) is not entirely clear. What messages are intended to be transmitted to a reader in here?

SuggestedRemedy

Suggest to change point g) to read "Support Energy Efficient Ethernet, with the optional function of low power idle (LPI - see Clause 78), available only for 100BASE-T.". Also, what is intended as optional in this case - support for EEE or LPI? Can EEE be supported without LPI ?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Rewrite the point g) as follows:
"Optionally support Energy Efficient Ethernet through the function of low power idle (LPI - see Clause 78), available only for 100BASE-TX."

Cl **24** *SC* **24.1.4.1** *P* **34** *L* **53** # 234

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D** *234*

What is "MII opcode" ? in the existing standard, I could only find references to "MII nibbles" - is this the same ?

SuggestedRemedy

Clarify what "MII opcode" is ...

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "MII opcode" to
"MII data code-groups and signals"

Cl **24** *SC* **24.2.2** *P* **36** *L* **33** # 235

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

One of the arrows should be dashed and it is solid. Check arrow to box "FAR-END FAULT DETECT".
Also, arrow arriving to box "LINK MONITOR" from the bottom (condition link_control) does not seem to have any ending.

SuggestedRemedy

Fix the errors in the figure as described in the comment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

These two questioned lines are from the diagram of original standard.

What is more, the solid line goes to FAR-END FAULT DETECT should be solid since it is part of a line from Transmitter process all the way to TX process which is not an option.

Cl **24** *SC* **24.2.2.1** *P* **37** *L* **38** # 236

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

What is the 'low power state' - is this the same as 'low power idle mode'?

SuggestedRemedy

Clarify and if both terms mean the same, use only one as needed.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Rewrite the bullet e) as follows:

"The /P/ code-group is used to start a LPI mode and to refresh the link during the LPI mode."

Cl **24** *SC* **24.2.2.5** *P* **39** *L* **11** # 237

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"commands from the Reconciliation Sublayer and MII" - RS is the acronym for Reconciliation Sublayer which is used consistently in the standard. Change to read "commands from the RS and MII"
The same comment for page 39, line 44

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Change 'Reconciliation Sublayer" to "RS" in the following places:

Line 11 of Page 39
Line 44 of Page 39

Cl **24** *SC* **24.2.2.5** *P* **39** *L* **12** # 238

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

What is the "low power transmit state" - is this the same as "low power idle transmit state"? If so, do not create new terms but use existing ones.
This term is used later on in the text. Scrub teh draft accordingly.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The low power transmit state and receive state are adopted in an early meeting motion. It may have been overlooked.

Rewrite the original sentence in line 12 as follows:

"The 100BASE-X PCS accepts LPI commands from the RS and MII (Table 22-1) to put the transmit path on low power idle mode. The PCS returns to the normal mode when it detects the termination of the LPI
command."

Replace "low power transmit state" with " transmit path on low power idle mode" in the following places:
line 48 of page 40
line 46 of page 49
line 48 of page 196
line 41 of page 202
line 38 of page 209

Replace "low power transmit state" with " low power idle mode" in the following places:
line 49 of page 41
line 54 of page 41
line 34 of page 49
line 52 of page 53

Cl **24** *SC* **24.2.2.5** *P* **39** *L* **31** # 239

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"The start of a LPI state is indicated by a series of SLEEP code-groups for fixed amount" should probably read "The start of a LPI state is indicated by a series of SLEEP code-groups !!!transmitted!!! for fixed amount" (remove ! signs).

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

"The start of a LPI state is indicated by a series of SLEEP code-groups transmitted for fixed amount"

Cl **24** *SC* **24.2.2.5** *P* **39** *L* **32** # 240

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Editorial issues on page 39
line 32 missing space in "inTable 24-2."
line 33 "to low power idle mode" > "to a low power idle mode"

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **24** *SC* **24.2.2.5** *P* **39** *L* **35** # 241

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"which is consuming less power than the normal state" - from the sentence, it seems that a state is consuming power. Probably equipment / hardware is ... refine the sentence accordingly.
in line 37: "before a Refresh or Wake state must present." should probably read "before a Refresh or Wake state appears". The original sentence reads very strange at the end.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

For line 35, remove the sentence ",which is consuming less power than the normal state"

For line 37, modify the sentence as follows:
"before a Refresh or Wake state appears"

Cl **24** *SC* **24.2.2.5** *P* **39** *L* **43** # 242

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **X**

What is the "low power receive state" - is this the same as "low power idle receive state"? If so, do not create new terms but use existing ones.
This term is used later on in the text. Scrub teh draft accordingly.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The low power transmit state and receive state are adopted in an early meeting motion. It was used here since then.

Rewrite the original sentence in line 43 as follows:

"Upon successfully receiving SLEEP code-groups, the 100BASE-X PCS put the receive path on low power idle mode.."

Replace "low power receive state" with " receive path on low power idle mode" in the following places:
line 41 of page 40
line 24 of page 49
line 25 of page 196 (Clause 70.6.10)
line 29 of page 202 (Clause 71.6.12)
line 16 of page 209 (Clause 72.6.11)

Replace "low power receive state" with " low power idle mode" in the following places:
line 25 of page 40
line 32 of page 40
line 37 of page 40
line 14 of page 41
line 20 of page 41
line 29 of page 41
line 35 of page 41
line 41 of page 41
line 15 of page 45
line 21 of page 45
line 41 of page 45
line 09 of page 46
line 15 of page 46
line 16 of page 46
line 35 of page 47
line 12 of page 49
line 29 of page 53

Cl **24** *SC* **24.2.3.1** *P* **40** *L* **5** # 243

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Three new constants are defined and not two ....

SuggestedRemedy

Fix the editorial description. Usually, no number is provided. May change to "Insert new constants in alphabetical order in the list below:"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **24** *SC* **24.3.1.8** *P* **45** *L* **4** # 244

Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **D**

in line 4: "PMA. See Clause 24.2.4.4 and Figure 24-11b" should read "PMA - see 24.2.4.4 and Figure 24-11b."
in line 16: "FAIL. See Clause 24.3.4.4 and Figure 24-15" should read "FAIL - see 24.3.4.4 and Figure 24-15."
in line 25: "Clause 24.3.4.4." should read "24.3.4.4.". General rule per editor guidelines for 802.3 is that the word "Clause" is not used - se section 11 in 2009 IEEE Standards Style Manual. Scrub the draft accordingly.
in line 30: "low power state. See Clause 24.2.4.4 and Figure 24-11b" should read "low power state - see 24.2.4.4 and Figure 24-11b."

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change line 6: "PMA. See Clause 24.2.4.4 and Figure 24-11b" to
"PMA (see 24.2.4.4 and Figure 24-11b)."

Change line 16: "FAIL. See Clause 24.3.4.4 and Figure 24-15" to
"FAIL (see 24.3.4.4 and Figure 24-15)."

Change line 25: "Clause 24.3.4.4." to "24.3.4.4.".

Change line 30: "low power state. See Clause 24.2.4.4 and Figure 24-11b" to
"low power state (see 24.2.4.4 and Figure 24-11b)."

Cl **24** *SC* **24.3.1.9.3** *P* **45** *L* **53** # 245
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

Language in "Far-End fault is not generated during the low power idle mode." > "Far-End fault is not generated when in the low power idle mode."

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **24** *SC* **24.3.3.2** *P* **46** *L* **7** # 246
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"When low power idle mode is executed, this" should probably read "In the low power idle mode, this"

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **24** *SC* **24.4.1.4** *P* **49** *L* **12** # 247
Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **D**

line 12: "state. See Clause 24.2.4.4 and Figure 24-11b." > "state - see 24.2.4.4 and Figure 24-11b."
line 34: "state. See Clause 24.2.4.2 and Figure 24-8" > "state - see 24.2.4.2 and Figure 24-8."

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change line 12: "state. See Clause 24.2.4.4 and Figure 24-11b." to
"state (see 24.2.4.4 and Figure 24-11b)."

Change line 34: "state. See Clause 24.2.4.2 and Figure 24-8"
"state (see 24.2.4.2 and Figure 24-8)."

Cl **24** *SC* **24.8.2.2** *P* **50** *L* **21** # 248
Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **D**

In line 21 and 28, there are references to IEEE Std 802.3-2005, which was invalidated by IEEE Std 802.3-2008. Replace them with references to "IEEE Std 802.3-2008"

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **25** *SC* **25.3** *P* **52** *L* **11** # 249
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

Suggest to reword bullet e) to read as follows "100BASE-TX optionally supports Energy Efficient Ethernet, as described in Clause 78, with its Low Power Idle. Two new service primitives PMD_RXQUIET.request(rx_quiet) (see 24.4.1.4) and PMD_TXQUIET.request(tx_quiet) (see 24.4.1.5) are generated to pass the energy saving requests from the PCS."

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **25** *SC* **25.4.11** *P* **53** *L* **45** # 250
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"This clause takes effect only if the option of low power idle" should read "This clause takes effect only if the optional low power idle"

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* **99** *P* **5** *L* **23** # 251

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

P802.3av added clauses 75 through 77 with Annexes 75A, 75B, 75C and 76A, and not "Clauses 91 through 93 and Annex 91A" as written in lines 23/24. Change the description accordingly.

SuggestedRemedy

Per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.1.1** *P* **16** *L* **21** # 252

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

PMD names should not be divided between the lines, which complicates understanding of the text. Either scrub it manually or prohibit FrameMaker from dividing the text on "-" characters. Contact me in case of doubts on how to do it. Occurences (page/line): 16/21, 17/24-25,

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.1.1.1** *P* **17** *L* **14** # 253

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"by Category 5 cable and components" - 'components' of what ?

SuggestedRemedy

Either clarify what these 'components' are or where one can find what that means.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete "and components" on page 17, line 14.

Cl **14** *SC* **14.1.1.1** *P* **17** *L* **24** # 254

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"Provides for operation with reduced transmit amplitude" - does EEE reduce the amplitude of the transmitted signal or provide a mechanism for the PMD to enter into sleep mode when not transmitting anything? This sentense is confusing

SuggestedRemedy

Clarify what "reduced transmit amplitude" means in this case and whether it is really the reduced signal amplitude that is meant in here.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change ". operation with reduced transmit amplitude for type 10BASE-Te ..." to ". operation with reduced peak differential voltage on the TD circuit for type 10BASE-Te ..."

Cl **14** *SC* **14.3.1.2.1** *P* **19** *L* **40** # 255

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Inconstent use of units. Units in 802.3 are always separated from the numeric value i.e. "between 1.54V and 1.96V for all data" should read "between 1.54-SPACE-V and 1.96-SPACE-V for all data"

SuggestedRemedy

Scrub the draft accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.8** *P* **23** *L* **50** # 256

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

MAU for 10BASE-T in 802.3-2008 does not have any speed designation i.e. point e) does not exist at all. Per draft, MAU should now include designation whether it is 10BASE-T or 10BASE-Te compliant. What about the previously existing MAUs, which do not have such indication - they should be treated as 10BASE-T compliant only?
Suggestion: recommend only indication whether MAU is 10BASE-Te compliant. Lack of any indication will indicate automatically that the given MAU is 10BASE-T compliant. Make an additional note to point e) as provided below.

SuggestedRemedy

change e) to read: "10BASE-Te support (optional). MAU supporting 10BASE-T does not have any labelling for backward compatibility reasons."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.10.4.5.12** *P* **24** *L* **28** # 257

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Changes to PICS in 14.10.4.5.12 (LS4 / LS5) are not marked accordingly.
Also changes in header 14.10 in line 3 on page 24 are not marked accordingly.

SuggestedRemedy

Introduce the marking as in e.g. 14.10.4.5.12 (TS1 / TS2) and in header 14.10 in line 3 on page 24

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.10.4.5.12** *P* **14** *L* **24** # 258

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"14.10.4.5.12" is repeated in line 8 and 24

SuggestedRemedy

Second occurence of "14.10.4.5.12" should read "14.10.4.7.1"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.2.1** *P* **25** *L* **9** # 259

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"The mapping changes slightly" - how much is "slightly" ? Avoid such void quantitative adjectives in the standard text since it is meaningless. There are changes, full stop.

SuggestedRemedy

Strike word "slightly" in line 9 on page 25.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

The word "slightly" is deleted as part of the rewording in comment #407.

Cl **22** *SC* **22.2.1** *P* **25** *L* **10** # 260

Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **D**

"The definition of low power idle .. " - low power idle is already defined one line above to be equal to LPI, which should be used in this clause thereinafter. Additionally, LPI is in the list of new acronyms. One more reason to use it.
Same on page 22, line 13.

SuggestedRemedy

Change occurences of "low power idle" to "LPI" on (page/line): 22/10, 22/13, 27/25, 27/40 (two occurences) etc. There are total of 357 occurenes of the term "low power idle" in teh draft, most of which can potentially be replaced with the acronym LPI. Scrub the draft accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "low power idle" to LPI in the following locations:

p.25, l.10; p.27, l.43; p.29, l.14; p.30, l.4; p.30, l.38; p.31, l.29; p.31, l.34; p.31, l.42

Change "low power idle mode" to "its low power state" on p.25, l.13

Change "low power idle state" to "low power state" on p.27, l.44; p.28, l.24; p.28, l.29; p.29, l.53; p.30, l.1; p.30, l.5 - also 2 occurrences in fig 22-6a.

Cl **22** *SC* **22.2.2.6a** *P* **28** *L* **19** # 261

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

Strange language "the LPI client asserts that it wishes the PHY to transition to the low power idle state"

SuggestedRemedy

Change "the LPI client asserts that it wishes the PHY to transition to the low power idle state" to read "the LPI client requests the PHY to transition to the LPI state". a PHY cannot deny such a request if it is EEE compatible, right? Similarly in line 24.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Make the suggested change for lines 19 and 24.

Cl **22** *SC* **22.2.2.6a** *P* **28** *L* **20** # 262

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Inconsistent spelling "deassert" or "de-assert"

SuggestedRemedy

The existing standard seems to be also insonsistent in the use of this word, though at least try to keep consistency within the given clause i.e. clause 22 usese" de-assert" rather than "deassert"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Change instances of deassert to de-assert in Clause 22.

Cl **22** *SC* **22.2.2.9a** *P* **29** *L* **51** # 263

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Text is confusing "When the PHY receives signals from the link partner to indicate transition into the low power state it indicates this to the LPI client by asserting RX_ER and setting RXD<3:0> to 0001 while keeping RX_DV deasserted." Consider adding commas or dividing the sentence intwo two logical blocks.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add a comma as shown:

"When the PHY receives signals from the link partner to indicate transition into the low power state, it indicates this to the LPI client by asserting RX_ER and setting RXD<3:0> to 0001 while keeping RX_DV deasserted."

Cl **22** *SC* **22.2.2.9a** *P* **30** *L* **5** # 264

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

What are these square brackets about? The provided values are neither part of any table nor references

SuggestedRemedy

Fix the use of the square brackets and replace them with parentheses (?).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete square brackets on line 5. Replace "[45.2.3.1.3a]" with "(see 45.2.3.1.3a)"

Cl **79** *SC* **79.3.a.1** *P* **244** *L* **3** # 265

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Missing opening parenthesis in "Transmit Tw_sys 2 octets wide)" - should be "Transmit Tw_sys (2 octets wide)

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28C** *SC* **28D.7** *P* **248** *L* **10** # 266

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Change "Clause 78 (Energy Efficient Ethernet)" to "Energy Efficient Ethernet (Clause 78)"
The same in line 12

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **36** *SC* **36.2.5.1.5** *P* **72** *L* **49** # 267

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"This timer is started when the PMD's receiver" > "This timer is started when the PMD receiver"

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **36** *SC* **36.2.5.2.9** *P* **82** *L* **26** # 268

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"If the optional Low Power Idle function is implemented the PCS indicates to the management system that LPI is currently active in the receive and transmit directions using the status variable shown in Table 36-3c."
should read
"If the optional Low Power Idle function is implemented##,## the PCS indicates to the management system that LPI is currently active in the receive and transmit directions using the status variable##s## shown in Table 36-3c."

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the comma and "s" as highlighted.

Cl **40** *SC* **40.1.4** *P* **89** *L* **3** # 269

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"an optional low power mode." > "and optional low power mode. - missing 'd' at the end of line 3

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.

[Editor's note: It is assumed the page being referenced is 87 and not 89.]

The text is grammatically and technically correct as written.

Cl **40** *SC* **40.2.2** *P* **87** *L* **13** # 270

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

In general case, editorial instructions should avoid specyfing the exact number of added variables, since these things change along the draft development. In this line, it is stated that 3 new items are added, while the list below contains 6 items marked as added. Which is it?
Such a problem exists in many places in the draft, and while not critical, it is confusing the reader to suspect that the mark-up is wrong ...

SuggestedRemedy

Please scrub the draft and remove references to the number of added variables or correct the number of variables / entrie added in each editorial instruction

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change editorial instruction to read "Insert new items in the list of service primitives as shown below:"

Also correct editorial instruction in 40.12.4.1.

Editor to review editorial instructions throughout the draft and update as necessary.

Cl **40** *SC* **40.2.12.1** *P* **89** *L* **30** # 271

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"is in progress hence 1000BTtransmit (refer to 40.3.3.1) will also be FALSE" - it is not common to use "refer to" in 802.3. Use "see" instead
Alsi in like 29, missing separator between 'Note' and "'Assert low power idle"' terms

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

It should be pointed out that there are many examples of the use of "refer to" in IEEE 802.3-2008 but the editor acknowledges that "see" is more frequently used. Change all occurences of "refer to" to "see" (the editor counts four such occurences in Clause 40).

With regard to the second point, to emphasize that this is not a "NOTE" per 18.1 of the 2009 IEEE Standards Style Manual, change text to read:
"Note that "assert low power idle" at the."

Cl **40** *SC* **40.3.4** *P* **96** *L* **11** # 272

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Condition "(Rxn) ? IDLE) * (rem_lpi_req = TRUE + lpi_mode = ON)" is located a little bit too much to the left and it does not seem to apply to the transit between IDLE and LP_IDLE states

SuggestedRemedy

Move it to the right, please

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **40** *SC* **40.4.5.1** *P* **99** *L* **49** # 273

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"or not the remote PHY is has completed the" - either 'is' or 'has'

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change text to read:
".the remote PHY has completed."

Cl **40** *SC* **40.4.2.4** *P* **100** *L* **3** # 274

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"signal at the MDI as defined in 40.6.1.3.5." > "signal at the MDI, as defined in 40.6.1.3.5." - missing comma

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **40** *SC* **40.4.5.2** *P* **100** *L* **20** # 275

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"This timer defines the maximum time the PHY will dwell in the POST_UPDATE state before"
"This timer defines the maximum time the PHY will remain quiet before initiating transmission to"
etc. in the same section.
It would be more natural to use
"...PHY dwells.. / ...PHY remains..." etc. Avoid using Future Simple since it does not relay the idea that such an operation of the underlyign function/element is certain

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Modify timer definitions in 40.4.5.2 to avoid the use of the future simple tense.

Cl **36** *SC* **36.2.5.2.8** *P* **80** *L* **23** # 276
Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **D**

Do not use "<=" in figures as an assignment operator. There is a specific symbol for that - see page 11 in your own draft ("Assignment operator")

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **79** *SC* **79.3.1.2** *P* **244** *L* **21** # 277
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"A receiving link partner may inform of the transmitter of what" should be rewritten, e.g. "A receiving link partner may inform the transmitter of "

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **79** *SC* **79.3.a** *P* **243** *L* **26** # 278
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"The EEE TLV is used to perform the EEE Data Link Layer capabilities" - how does one 'perform' capabilities? Do you mean 'exchange' information about capabilities?

SuggestedRemedy

Please rewrite consistently

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will change:

"The EEE TLV is used to perform the EEE Data Link Layer capabilities"

To:
"The EEE TLV is used to exchange information about the EEE Data Link Layer capabilities"

Cl **78** *SC* **78.4.3** *P* **240** *L* **32** # 279
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

The text says "The state diagrams above" - which ones precisely?

SuggestedRemedy

Add references to which state diagrams are referred to ...

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "The state diagrams describe the behavior above"

to

"The state diagrams in Figure 78-4 and Figure 78-5 describe the behavior above"

Cl **78** *SC* **78.4.3.1** *P* **240** *L* **46** # 280
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

What is a "link partner machine"? Do you mean a specific state machine?

SuggestedRemedy

Please clarify

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "If the transmitting link partner machine"

to "If the transmitting link partner's state machine"

Cl **78** *SC* **78.4** *P* **234** *L* **9** # 281

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

What is exactly the 'link rate' - is this the 'MAC rate' or a 'PHY rate'?

SuggestedRemedy

Clarify. Try not to add new terms to the already existing nomenclature.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "The Data Link Layer capabilities shall be implemented for devices operating at link rates equal to or greater
than 10 Gbps and may be implemented for all other devices."

to

"The Data Link Layer capabilities shall be implemented for devices with an operating speed equal to or greater
than 10 Gbps and may be implemented for all other devices."

Cl **78** *SC* **78.4** *P* **234** *L* **20** # 282

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

What "the nomenclature was edited to align" with P802.3bc? Does this note need to be here at all?

SuggestedRemedy

Clarify or remove

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete editor's note

Cl **78** *SC* **78.2** *P* **232** *L* **3** # 283

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

What is this 'sleep signal'?
Replace the statement "Duration PHY" with "Time during which PHY" in lines 3 and 4.
What is "xxMII" - this term is neither defined anywhere nor even used consistently since in many places there is a term 'xMII' used instead. Decide on which term is to be used and then scrub the draft.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace xxMII wth xMII

Cl **78** *SC* **78.2** *P* **232** *L* **23** # 284

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

What is a "Tx system"? Additionally, the use of 'tx system' is not consistent. Sometimes 'tx' is all small caps, sometimes it is capitalized. Scrub the draft

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

"Tx system" is an abbreviation for "transmitting system".

Capitalization will be scrubbed

Cl **78** *SC* **78.2** *P* **232** *L* **26** # 285
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"It is the shortest period of time Rx system is provided between" - clarify the sentence. Probably commas are missing here to clarify which part of the sentence is relative to which

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change definition of Tw_sys_rx to:
Parameter employed by the system which corresponds to the behavior of the system.
It is the minimum time between a request to wake and readiness to receive data, for an Rx system.

Cl **78** *SC* **78.1.3.3.1** *P* **231** *L* **14** # 286
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"No data frames are lost or corrupted during the transition to or from the Low Power Idle mode." - is this a requirement or just an option?

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.

It is exactly as stated, not an option.

Cl **78** *SC* **78.1.4** *P* **231** *L* **31** # 287
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

Section 78.1.4 should be located at the very beginning of Clause 78, prior to making any specifications. PHYs in Table 78-1 should be collectively referred to as "supported PHYs" or "PHYs supporting EEE" or imilar.
Clause 78.1.4 is too late in the draft to be of much use

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Cl **78** *SC* **78.1.3.2** *P* **230** *L* **7** # 288
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"service interface as normal." - probably "service interface under normal conditions".

SuggestedRemedy

Search for any other similar references of this term and scrub the draft.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

"service interface as under normal conditions"

Cl **78** *SC* **78.1.3.3** *P* **230** *L* **21** # 289
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"can be found in the respective PHY." - which is? It would be very good to have reference to the PHYs supported by EEE in this place.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See response to #297.

Cl **78** *SC* **78.1.3.3.1** *P* **230** *L* **26** # 290
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

Clarify what the meaning of "sleep signal" is. Typically, we avoid using the word "signal" since it has no clear meaning in this context. Probably an 'encoding / code-word' is sent instead

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This is a useful term. Other text clarifies the meaning.

Cl **78** *SC* **78.1.3.3.1** *P* **230** *L* **30** # 291

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"PHY enters a quiet mode after the sleep signal transmission." > "PHY enters the quiet mode after transmission of the sleep signal."
See also the comment on the "sleep signal"

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.3.3.1** *P* **230** *L* **30** # 292

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"quiet mode" - there are many different modes which areused in this draft, with different capitalization, and potentially with the same meaning / or simialr. To avoid reader confusion, please consider adding a section which describes all the modes which you use in this draft and then provide reference to them in the text. Also, use consistent capitalization

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Commentor to provide specific remedy.

Cl **78** *SC* **78.1.3.3.1** *P* **230** *L* **34** # 293

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"receives sleep", 'transmits sleep' - probably 'sleep signal' or something alike?

SuggestedRemedy

Please clarify

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.3.3.1** *P* **230** *L* **34** # 294

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"can go quiet" - what does this mean? Does this mean that the transmission is suspended? Please clarify.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.3.3.1** *P* **230** *L* **35** # 295

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"system energy savings can be achieved even if the PHY link does not go quiet." - not sure what is really meant in here. Does that mean that the link can be maintained active and still there is power saving potential? If so, this needs to be clarified.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The commentor's interpretation is correct. Not sure why further clarification is needed.

Editor will consider specific suggested text if the commentor can provide it.

Cl **78** *SC* **78.1.3** *P* **229** *L* **3** # 296

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"The specific media independent interface is dependent on the speed of operation therefore this interface is shown as xMII in the diagram." > "The xMII interface in this diagram represents any of the family of medium intependent interfaces, supported by EEE.".

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.3** *P* **229** *L* **33** # 297
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"found in the respective RS clauses." - which RS clauses?

SuggestedRemedy

Please provide a list of RS clauses in here. Perhaps in Table 78-1, it would be beneficial to add the list of RS clauses as well, and then just reference them per Table 78-1.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

In general, enumerating clauses is a bad idea because subsequent changes to the standard which introduce new clauses will require an otherwise unnecessary update to this text.

Cl **78** *SC* **78.1.1.2** *P* **227** *L* **35** # 298
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"Idle on the RS" > "Idle through the RS". RS is not visible to the client on the other side of the link, so you can signal through it but not on it ...

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1** *P* **226** *L* **13** # 299
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"transition time to and from the lower level of power consumption is kept small enough to be transparent to" and not a "lower power period" or status or mode

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Exact wording will be adjusted for best gramatical fit.

Cl **78** *SC* **78.1.1** *P* **226** *L* **37** # 300
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"is expected and components may use this" - what are these 'components'?

SuggestedRemedy

Please clarify per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace "components" with "the LPI Client"

Cl **78** *SC* **78.1.1** *P* **226** *L* **38** # 301
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"Similarly, it informs the LPI" - what is this 'it' in this context?

SuggestedRemedy

Please clarify the meaning

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

"it" is "Low Power Idle signaling". Not sure a clarification is needed.

Cl **25** *SC* **25.4.11.1.1** *P* **54** *L* # 302
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"This variable is from the Transmit process of PCS to control the power saving function of local transmitter" - this variable is part of the Transmit processand it is used by PCS to control the power saving .... ? Is this what is meant?
Similar question for page 56, line 3

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Rewrite the statement as follows:

"This variable is delivered by the Transmit process of PCS to control the power saving function of local transmitter"

Cl **35** *SC* **35.1.1** *P* **65** *L* **21** # 303

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"The GMII may also support low power idle signaling as defined for Energy Efficient Ethernet in Clause 78 for some PHY types. (see Clause 78)." > "GMII may also support Low Power Idle (LPI) signaling as defined for Energy Efficient Ethernet in Clause 78 for certain PHY types."

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **35** *SC* **35.2.1** *P* **65** *L* **30** # 304

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"slightly" - how much is 'slightly'? Remove all such indefinite determiners from the text - they do not add anything to the description and may cause questions about the volume / quantity.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

"The mapping is changed if the optional power idle (LPI) signaling is supported."

Cl **35** *SC* **35.2.2.6** *P* **67** *L* **1** # 305

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"When the LPI client wishes ... " - indicates that the LPI client has a free will. "When the LPI client requests ... " sounds betters. Please scrub the draft, there are many locations wehere this term occurs.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **35** *SC* **35.2.2.7** *P* **67** *L* **41** # 306

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"while driving the value <01> onto RXD<7:0>." how big is <01> ? If it is two bits long, how do to drive it into an 8-bit wide variable? If it is a hex representation, I think the correct way is to designate is as 0x01 to avoid confusion. What does it mean to 'drive' a value into something?

SuggestedRemedy

Please clarify the issues

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to 0x01

Cl **35** *SC* **35.2.2.4** *P* **66** *L* **9** # 307

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

What does this mean "generate an assertion of low power idle" ? Is a signal generated by the PHY? Same in line 16 on the same page.

SuggestedRemedy

Clarify the meaning / change the description

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

To match the sense of the existing sentence, change the inserted text to:

"Low Power Idle"

Cl **35** *SC* **35.2.2.6a** *P* **66** *L* **48** # 308

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"and setting TXD<7:0> to 01." is this 01 a hex representation, binary representation or sometheing completely different ? Please clarify

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to 0x01

Cl **35** *SC* **35.2.2.6a** *P* **66** *L* **49** # 309

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"The LPI client maintains the same state for these signals for the entire time that it wishes the PHY to remain in the low power idle state." - this is a very complicated way of saying "The LPI clients keeps the signals' state as long as the PHY is requested to remain in the low power idle state." Feel free to modify this further if needed.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Make the same changes on line 47 & p.67, l.1 as for comment #261 (from the same commenter).

Cl **35** *SC* **35.2.2.9a** *P* **68** *L* **43** # 310

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

Rewrite the first paragraph of this section i.e. 35.2.2.9a since the language is very complex. Proposed version "When the PHY receives signals from the link partner indicating its transition into the low power state, it signals this fact to the LPI client by asserting RX_ER and setting RXD<7:0> to 0x01 while keeping RX_DV deasserted. The PHY maintains these signals in this state while it remains in the Low Power Idle state. When the PHY receives signals from the link partner indicating its transition out of the low power idle state, it signals this fact to the LPI client by deasserting RX_ER and returning to a normal inter-frame state."
Also, what is this 'normal inter-frame state' ?

SuggestedRemedy

Consider the proposal of the change plus answer the question

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to:

"When the PHY receives signals from the link partner indicating LPI, it signals this to the LPI client by asserting RX_ER and setting RXD<7:0> to 0x01 while keeping RX_DV deasserted. The PHY maintains these signals in this state while it remains in the Low Power Idle state. When the PHY receives signals from the link partner indicating its transition out of the low power idle state, it signals this to the LPI client by deasserting RX_ER and returning to normal inter-frame encoding."

"normal inter-frame" is defined in Table 35-2.

Cl **36** *SC* **36.2.4.12a** *P* **71** *L* **52** # 311

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

'indicating "assert low power idle.' - missing "" at the end. Additionally, wouldn;t it be possible to say that GMII is singalling the request to asset the LPI?

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

"assert low power idle" - exactly as in Table 35-1.

Cl **36** *SC* **36.2.5.1.3** *P* **72** *L* **19** # 312

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"(xmit=DATA * TX_OSET.indicate * TX_EN=FALSE * TX_ER=TRUE * (TXD<7:0> =01))" the 01 is hexadecimal or not? Otherwise, which bits are compared?

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to 0x01

Cl **36** *SC* **36.2.5.1.5** *P* **73** *L* **35** # 313

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"When TRUE this indicates" - probably "When equal to TRUE, it indicates" ... similar in line 40

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the format of the two messages to match current messages in the clause - "Values: TRUE. FALSE."

Cl **36** *SC* **36.2.5.2.6** *P* **80** *L* **2** # 314

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"is given by 36-9b ..." - probably Figure 36-9b. Also remove the repetition of the figure caption after the 36-9b from line 3.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **40** *SC* **40.1.3.1** *P* **86** *L* **10** # 315

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

Editorial comments for section 40.1.3.1
"When the PHY supports Energy Efficient Ethernet, the idle mode encoding conveys information to the remote PHY indicating whether the local PHY is requesting it to enter into the low power mode or not. Such requests are a direct translation of the assertion of low power idle at the GMII. In addition, the idle mode encoding conveys information to the remote PHY indicating whether the local PHY has completed the update of its receiver state or not, as indicated by the PMA PHY Control function"
Also some questions:
(1) what is 'idle mode encoding' ? is this like 'low power idle assertion' ?
(2) capitalization of terms like 'idle mode', 'low power idle' etc. needs to be scrutinized.
(2)

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Refer to IEEE 802.3-2008, 40.1.3.1 (fourth paragraph) for the definition of "idle mode encoding".

"Between frames, a special subset of code-groups using only the symbols {2, 0, -2} is transmitted. This is called idle mode. Idle mode encoding takes into account the information of whether the local PHY is operating reliably or not (see 40.4.2.4) and allows this information to be conveyed to the remote station. During normal operation, idle mode is followed by a data mode that begins with a Start-of-Stream delimiter."

Usage of the term, including capitalization, is consistent with the base document. However, in the process of reviewing this comment, a different issue with terminology was noted and will be corrected.

Change text:
"Such requests are a direct translation of the assertion of low power idle at the GMII."

To:
"Such requests are a direct translation of "assert low power idle" at the GMII."

Cl **40** *SC* **40.2.11.1** *P* **89** *L* **5** # 316

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D** *Low Power Idle mode*

"This value is asserted with then PHY is operating in low power mode." > "This value is asserted when the PHY is operating in the low power mode."
Questions
(1) is 'low power mode' the same as 'low power idle mode' ?
(2) capitalization of vital terms needs to be consistent across the draft

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Refer to #117.

Cl **40** *SC* **40.4.5.1** *P* **99** *L* **10** # 317

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"Note that when the PHY supports Energy Efficient Ethernet, when signal_detect is FALSE, scr_status is set to NOT_OK" - this sentence does not read right. There are two "when" conditions? Perhaps one should be changed to an "if" condition. Are the conditions mutual?

SuggestedRemedy

Please rewrite this sentence so that it is clear what it means. Avoid using two 'when' statements unless used together with 'and/or' e.g. '.. when ... and when ...' or alike.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change text to read:
"Note that when the PHY supports
Energy Efficient Ethernet and signal_detect is FALSE, scr_status is set to NOT_OK."

Cl **40** *SC* **40.4.2.4** *P* **98** *L* **7** # 318

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **D**

"When the PHY supports Energy Efficient Ethernet, PHY Control will transition to a low power mode in response to concurrent requests for low power operation from the local PHY (loc_lpi_req = TRUE) and remote PHY (rem_lpi_req = TRUE)." - how do you guarantee that the remote and local PHYs transit to the lower power idle mode at the same moment of time? There is something like transmission delay in P2P links which will make it impossible. Could you clarify this concept in the draft?

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

When the system requests operation in Low Power Idle mode, "assert low power idle" is continuously encoded at the GMII. Per the PCS Local LPI Request state diagram (Figure 40-9), loc_lpi_req = TRUE is continuously encoded in the transmitted symbols when "assert low power idle" is present on the GMII. This implies that rem_lpi_req = TRUE will be continuously decoded from the received symbols by the link partner. Since this is not a "one time" transmission, but rather a continuous encoding of state, the synchronization issue implied by the commentor does not exist.

If rem_lpi_req = TRUE is not decoded from the received symbols while "assert low power idle" is present at the GMII (or vice versa), then the intended behavior is to not have the PHY transition to Low Power Idle mode.

The draft adequately describes the intended behavior and no further clarification is required.

Cl **78** *SC* **78.1.3.1** *P* **229** *L* **44** # 319

Hajduczenia, Marek ZTE Corporation

Comment Type **TR** *Comment Status* **D**

"LPI assert function starts to transmits the 'assert low power idle' encoding on the xMII." - it would be much more correct for the LPI client to transmit such data through the RS rather than for data to be generated locally in the RS. LPI assert function should in such a case disable the MAC and enable local generation of control frames in the LPI client.

SuggestedRemedy

Consider removing the function of generating 'assert low power idle' encoding on xMII from LPI assert function in RS per comment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Proposes a change to an architecture that has already been approved by the task force.

Cl **79** *SC* **79** *P* **243** *L* **1** # 320
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Missing space between "79" and "IEEE 802.3"

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.5** *P* **242** *L* **3** # 321
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Editorial changes on page 242
"In full duplex mode" to "In a full duplex mode" (scrub also the draft for the occurences of the word 'mode' and make sure that the use of 'a' / 'the' before statement like 'full duplex mode', 'lower power mode' etc is consistent.). Additionally decide whether it is 'in ... mode' or 'at ... mode' since it is not used consistently. Also make sure that the 'Lower Power Idle' is superceded by a correct preposition i.e. either 'the' or 'a'.
"propagation delays through the network" to "propagation delay through the network" - there is only one delay through the network rather than multiple delays.
"mode, PHY device" to "mode, a PHY device" - also, scrub the draft for the term "PHY device" and make sure that 'a' / 'the' is used consistently.
"for data transmission request" to "for a data transmission request" " - also, scrub the draft for the term "request" and make sure that 'a' / 'the' is used consistently.
"normal idle code" or "normal IDLE code"? Capitalization of the word "IDLE " is not consistent throughout the draft.
"the systems designer" to "a system designer"

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.4.3.2** *P* **241** *L* **8** # 322
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Missing comma between 'operation' and 'the receiving'

SuggestedRemedy

Per comma

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.4.3.1** *P* **240** *L* **36** # 323
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Editorial changes in section 78.4.3.1
"if presently advertised value" to "if the presently advertised value"
"During normal operation the transmitting link" to "During normal operation, the transmitting link"
"If the transmitting link partner wants to initiate a change to the presently resolved value of Tw_sys, the local_system_change is asserted and the transmitting link partner enters the LOCAL CHANGE state where NEW_TX_VALUE is computed" - this sentence is probably missing a comma or two.
"Otherwise it returns" to "Otherwise, it returns"
"receiving link partner it" to "receiving link partner, it"
"is lesser than either" - probably "is smaller than either"

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Make the following changes to section 78.4.3.1
- "if presently advertised value" to "if the presently advertised value"
- "During normal operation the transmitting link" to "During normal operation, the transmitting link"
- "Otherwise it returns" to "Otherwise, it returns"
- "receiving link partner it" to "receiving link partner, it"
- "is lesser than either" - probably "is smaller than either"

Cl **78** *SC* **78.4.2.3** *P* **235** *L* **31** # 324

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

certain words in in 78.4.2.3 are in smaller font e.g. aLldpXdot3LocTxTwSys and other names of register attributes

SuggestedRemedy

Check teh size of the font and adjust to the overall font format.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.2** *P* **232** *L* **29** # 325

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"for the supported PHY's." - probably "for the supported PHYs."

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.3.3.2** *P* **231** *L* **18** # 326

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Editorial changes to section 78.1.3.3.2. Changes indicated with ## characters
"triggered by the reception of sleep signal" > "triggered by the reception of ##the## sleep signal".
"link partner. This signals that the link partner is about to enter Low Power Idle mode." > "link partner##, which indicates## that the link partner is about to enter ##the## Low Power Idle mode."
"While the Link partner has ceased transmission the local" > "##When## the Link partner ##ceased## transmission##,## the local"
"recovery time the link supports nominal operational data rate." > "recovery time##,## the link supports nominal operational data rate."

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.2.1.2** *P* **228** *L* **16** # 327

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Smaller font in "28.2.6.1.1". Increase the font to match the rest of the text

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1** *P* **226** *L* **5** # 328

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Editorial changes in section 78.1
"operation in Low Power Idle" > "operation the in Low Power Idle"
"When Low Power Idle" > "When the Low Power Idle"
"EEE also specifies a means for the capabilities negotiation to enable link partners to determine whether EEE is supported and selection best set of parameters common to both devices." > "EEE also specifies ## means for ## capabilities negotiation to enable link partners to determine whether EEE is supported and selection ##the## best set of parameters common to both devices."
"The definition of 10BASE-Te allows reduced power consumption" > "The definition of 10BASE-Te allows for a reduced power consumption"

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **25** *SC* **25.4.11.2** *P* **55** *L* **28** # 329
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

Why in some locations terms 'Transmiter', 'Receiver', 'Descrambler' etc are capitalized and in other they are not? Does it have to do with specific subclauses?

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "Descrambler" to "descrambler" in the following places:

Line 29 of Page 55
Line 47 of Page 55
Line 48 of Page 55
Line 17 of Page 56

Change "Receiver" to "receiver" on the following places:

Line 28 of Page 55
Line 39 of Page 55
Line 40 of Page 55
Line 41 of Page 55

No place of "Transmitter" in draft can be found which needs to be changed.

Cl **35** *SC* **35.2.2.7** *P* **67** *L* **40** # 330
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"de-assert' or 'deassert' ? In various different locations, different spellings are used. Please confirm with 802.3 staff editors which version is the correct one and should be used. Srub the draft.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Within clause 35, change all instances to de-assert.

Cl **36** *SC* **36.2.4.7** *P* **71** *L* **12** # 331
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

in line 12 and 13, /LI1/ is divided between lines, please avoid it.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **36** *SC* **36.2.4.12a** *P* **71** *L* **51** # 332
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

"Low Power Idle" or "Low power idle" or "low power idle" or any other version ?

SuggestedRemedy

Decide how to capitalize this term. Use LPI if possible, once it is decided.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

P.71, l.51, add (LPI) after Low Power Idle.

Change to LPI - P.71, l.51; p.72, l.3; p.72, l.18; p.72, l.30; p.72, l.34; p.80, l.1; p.80, l.16; p.82, l.27;

Cl **36** *SC* **36.2.5.1.2** *P* **72** *L* **18** # 333
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **D**

There are numerous logical conditions in this section. Could it be possible to move them into separate equations, so they are more readable ?

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the formatting of assert_lpidle, detect_idle and detect_lpidle to improve readability.

Cl **99** *SC* *P* *L* # 334

Hamano, Hiroshi Fujitsu Labs. Ltd.

Comment Type **E** *Comment Status* **D** *doc-structure*

The document structure introducing the EEE texts into the old ones must have already been fully discussed in the TF. But I still have a little concern that the current old texts will be mixed up and become confusing for the readers, when the editorial underlines finally disappear and conditional statements appear everywhere; if the optional EEE function is supported.., if the optional low power idle function is implemented.., and when the PHY supports EEE..

SuggestedRemedy

The new Section6 of 802.3 with new Clause numbers may possibly be allocated to the whole EEE specifications, and old texts up to Section5 can basically keep the current description..

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #410

Cl **78** *SC* **78.1.3.2** *P* **230** *L* **16** # 335

Koenen, David Hewlett Packard

Comment Type **E** *Comment Status* **D**

The middle paragraph says that the LPI detect function "continues to indicated idle", but last paragraph does not say that it resumes normal operation when 'assert low power idle' encoding.

SuggestedRemedy

Add the following to the last sentence:

and the RS receive function resumes normal decode operation.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **79** *SC* **79.3.1.1** *P* **244** *L* **13** # 336

Koenen, David Hewlett Packard

Comment Type **E** *Comment Status* **D**

Pronoun 'it' ambiguous in sentence "Receive Tw_sys (2 octets wide) is the time (expressed in microseconds) that the receiving link partner is requesting the transmitting link partner to wait before it starts transmitting data following the Low Power Idle."

SuggestedRemedy

Change to "Receive Tw_sys (2 octets wide) is the time (expressed in microseconds) that the receiving link partner is requesting the transmitting link partner to wait before transmitting data following the Low Power Idle.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to "Receive Tw_sys (2 octets wide) is the time (expressed in microseconds) that the receiving link partner is requesting the transmitting link partner to wait before starting the transmission data following the Low Power Idle.

Cl **74A** *SC* **74A.5** *P* **250** *L* **51** # 337

Koenen, David Hewlett Packard

Comment Type **E** *Comment Status* **D**

The FEC encoder will not alway be receiving unscrambled data if the PHY support EEE.

SuggestedRemedy

Change sentence to: "If the optional Energy Efficient Ethernet function is supported (see Clause 78) then the reverse gearbox of the remote FEC encoder will receive unscrambled data low power idle periods. PCS sublayer will be encoding /I/ during the wake state, which produces the deterministic FEC frame."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Changing the sentence to:"If the optional Energy Efficient Ethernet function is supported (see Clause 78) then the reverse gearbox of the remote FEC encoder will receive unscrambled data when the transmitter is waking up from low power state. PCS sublayer will be encoding /I/ during the wake state, which produces the deterministic FEC frame."

Cl **78** *SC* **78.4** *P* **234** *L* **13** # 338
Koenen, David Hewlett Packard

Comment Type **TR** *Comment Status* **D**

The EEE TLV type is not define in 78.4.1. Bad reference

SuggestedRemedy

I believe the reference you want here is 79.3a where it defines the EEE TLV.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.8** *P* **23** *L* **51** # 339
Law, David 3Com

Comment Type **E** *Comment Status* **D**

Suggest that '10BASE-T or 10BASE-Te support.' should be changed to read 'Whether 10BASE-T MAU or 10BASE-Te MAU.'.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See resolution of comment #256.

Cl **55** *SC* **55.1.3.2** *P* **158** *L* **38** # 340
Law, David 3Com

Comment Type **E** *Comment Status* **D**

As XGMII means 10 Gigabit Media Independent Interface 'XGMII interface' expands to '10 Gigabit Media Independent Interface Interface'.

SuggestedRemedy

Change 'XGMII interface' to read 'XGMII'.

Also:
Page 159, line 25
Page 168, line 53
Page 232, line 11
Page 232, line 19
Page 232, line 20

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **46** *SC* **46.3.2.4a** *P* **124** *L* **1** # 341
Law, David 3Com

Comment Type **E** *Comment Status* **D**

Typo.

SuggestedRemedy

'Insert 45.3.2.4a for receive low power idle transition:' should read 'Insert 46.3.2.4a for receive low power idle transition:'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.3** *P* **126** *L* **17** # 342
Law, David 3Com

Comment Type **E** *Comment Status* **D**

The encoding on the receive path of the XGMII when the PHY is receiving the Low Power Idle on its RX MDI is Table 46-4 as 'assert low power idle', not 'receive Low Power Idle' (see also my comment on subclause 22.2.2.7).

SuggestedRemedy

Change 'receive Low Power Idle' to read 'assert low power idle'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.4.4** *P* **138** *L* **52** # 343
Law, David 3Com

Comment Type **E** *Comment Status* **D**

The encoding on the receive path of the XGMII when the PHY is receiving the Low Power Idle on its RX MDI is Table 46-4 as 'assert low power idle', not 'receive Low Power Idle' (see also my comment on subclause 22.2.2.7).

SuggestedRemedy

Change 'receive Low Power Idle' to read 'assert low power idle'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **46** *SC* **46.3.2.2** *P* **123** *L* **10** # 344
Law, David 3Com

Comment Type **E** *Comment Status* **D**

Typo.

SuggestedRemedy

'assert low ...' should read 'Assert low ...'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.1.1** *P* **16** *L* **15** # 345
Law, David 3Com

Comment Type **T** *Comment Status* **D**

The overview text for the 10BASE-Te MAU should parallel the construct of the similar text for the 10BASE-T MAU, in addition I don't think that the one mention of the 10BASE-Te MAU name in the first overview paragraph should be parenthetical.

SuggestedRemedy

Suggest that 'This clause also specifies characteristics of the Energy Efficient version of 10BASE-T (type 10BASE-Te) MAU.' should be changed to read 'This Clause also specifies the functional, electrical, and mechanical characteristics of the Energy Efficient version of 10BASE-T, the type 10BASE-Te MAU, and one specific medium for use with that MAU.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.1.1** *P* **16** *L* **16** # 346
Law, David 3Com

Comment Type **T** *Comment Status* **D**

Isn't 'new' a relative term - in a few years this text could be read to mean legacy devices did do this - also to me the text could be simplified as suggested below.

SuggestedRemedy

Suggest that 'NOTE - It is expected that new 10 Mb/s devices for twisted pair media will not support both 10BASE-T and 10BASETe.' be changed to read 'NOTE - Support for both 10BASE-T and 10BASETe in a single device is not expected.'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.1.1.2** *P* **17** *L* **39** # 347
Law, David 3Com

Comment Type **T** *Comment Status* **D**

I don't think the medium for 10BASE-Te is 'a channel meeting ...', the medium for 10BASE-Te is twisted-pair wire. I believe that it is the performance specifications of the 10BASE-Te simplex link segment that has to meet the Class D channel. (See also similar comment on subclause 14.4.1)

SuggestedRemedy

[1] Suggest that (Page 17, line 32) 'The performance specifications of the simplex link ..' be changed to read 'The performance specifications of the 10BASE-t simplex link ..'.

[2] Suggest that 'The medium for 10BASE-Te is a channel meeting or exceeding the requirements of ..' be changed to read 'The medium for 10BASE-Te is twisted-pair wire. The performance specifications of the 10BASE-Te simplex link segment is a channel meeting or exceeding the requirements of ..'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.1.1.1** *P* **17** *L* **24** # 348
Law, David 3Com

Comment Type **T** *Comment Status* **D**

I didn't think the reduced transmit amplitude was optional for 10BASE-Te (see 14.3.1.2.1) therefore don't understand the parenthetical 'optional' after 10BASE-Te.

SuggestedRemedy

Change the text '... for type 10BASE-Te (optional).' to read ' ... for type 10BASE-Te.'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.3.1.2** *P* **18** *L* **22** # 349
Law, David 3Com

Comment Type **T** *Comment Status* **D**

This subclause states that 'For all measurements, the TD circuit shall be connected through a balun to section 1 and the signal measured across a load connected to section 4 of the model.' and I don't see any changes to exclude this statement from applying to 10BASE-Te however Figure 14-7a doesn't contain any such annotations.

SuggestedRemedy

The simplest fix would seem to be to label the left hand section of Figure 14-7a as 'Section 1' and the right hand section of Figure 14-7a as 'Section 4'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.4.1** *P* **22** *L* **48** # 350

Law, David 3Com

Comment Type **T** *Comment Status* **D**

I don't think the medium for 10BASE-Te is 'a channel meeting ...', the medium for 10BASE-Te is twisted-pair wire. I believe that it is the performance specifications of the 10BASE-Te simplex link segment that has to meet the Class D channel. (See also similar comment on subclause 14.1.1.2)

SuggestedRemedy

[2] Suggest that 'The medium for 10BASE-Te is a channel meeting or exceeding the requirements of ..' be changed to read 'The medium for 10BASE-Te is twisted-pair wire. The performance specifications of the 10BASE-Te simplex link segment is a channel meeting or exceeding the requirements of ..'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **14.4.1** *P* **22** *L* **48** # 351

Law, David 3Com

Comment Type **T** *Comment Status* **D**

This is not the format used everywhere else for referencing the international (ISO/IEC) and then national (TIA) cabling standards (see page 17, line 13 for an example).

SuggestedRemedy

Change '.. meeting or exceeding the requirements of the Class D channel specified by ISO/IEC 11801:1995 or the Category 5 channel as specified in ANSI/TIA/EIA-568-A-1995.' to read '.. meeting or exceeding the requirements of the Class D channel specified by ISO/IEC 11801:1995. This requirement can also be met by Category 5 cable and components as specified in ANSI/TIA/EIA-568-A-1995.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.2.2.7** *P* **29** *L* **36** # 352

Law, David 3Com

Comment Type **T** *Comment Status* **D**

To allow Clause 78 to refer globally to the same encoding on the MII, GMII and XGMII, as well as just being a good idea, I believe that the encoding on the receive path of the MII, GMII and XGMII when the PHY is receiving the Low Power Idle on its RX MDI should have the same description. At the moment we have:

MII Receive low power idle
GMII Assert low power idle
XGMII assert low power idle
79.1.3.2 assert low power idle

I suggest that for consistency we use 'assert low power idle'.

SuggestedRemedy

Change 'Receive low power idle' in Table 22-2 to read 'Assert low power idle'.

Also make this change:

Page 29, line 46
Page 40, line 17
Page 68, line 40
Page 105, line 15
Page 105, line 20
Page 115, line 1
Page 115, line 12
Page 124, line 1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Note that this effects clauses 22, 24, 35, 40, 45, 46

Cl **35** *SC* **35.2.2.9a** *P* **69** *L* **4** # 353

Law, David 3Com

Comment Type **T** *Comment Status* **D**

While there is a minimum of 9 RX_CLK clock cycles requires on the entry to low power idle mode there is no specification of the minimum number of RX_CLK clock cycles required to exit low power idle mode although from the figure it could be implied that there is only one required.

SuggestedRemedy

Add a specification of the minimum number of RX_CLK clock cycles required on exit from low power idle.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Similar to comment #370

Add a sentence after "if and only if the
Clock stoppable bit is asserted." on p.68, l.51.
"The PHY may restart RX_CLK at any time while it is asserting LPI, but shall restart RX_CLK so that at least one positive transition occurs before it deasserts LPI."

Cl **46** *SC* **46.3.1.2** *P* **121** *L* **13** # 354

Law, David 3Com

Comment Type **T** *Comment Status* **D**

To allow Clause 78 to refer globally to the same encoding on the MII, GMII and XGMII, as well as just being a good idea, I believe that the encoding on the transmit path of the MII, GMII and XGMII when the RS is transmiting Low Power Idle on the xMII should have the same description. At the moment we have:

MII Assert low power idle
GMII Assert low power idle
XGMII LP_IDLE - assert low power idle
79.1.3.2 assert low power idle

I suggest that for consistency we use 'assert low power idle'.

SuggestedRemedy

Change 'LP_IDLE - assert low power idle' to read 'Assert low power idle'.

Also change 'transmit low power idle' to read 'assert low power idle' in the following locations:

Page 27, line 50
Page 66, line 43
Page 105, line 13
Page 105, line 18
Page 114, line 47
Page 115, line 7
Page 121, line 39

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **46** *SC* **46.3.1.2** *P* **121** *L* **14** # 355

Law, David 3Com

Comment Type **T** *Comment Status* **D**

Is this really 'Normal inter-frame'.

SuggestedRemedy

Suggest that 'Normal inter-frame' be changed to read 'Low power inter-frame'.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

There is no "low power" behavior defined for PLS_DATA.request, therefore the mapping should be "normal inter-frame" for both IDLE and LPIDLE.

Cl **14** *SC* **14** *P* **16** *L* **10** # 356

Law, David 3Com

Comment Type **TR** *Comment Status* **D**

It is not clear if the 10BASE-Te MAU is a separate type of MAU or is a subtype of the 10BASE-T MAU. The way the introductory subclause is written it appears that a 10BASE-Te MAU is a separate distinct MAU type but then if that is true the whole of IEEE Std 802.3 would need to be modified to replace every instance of '10BASE-T' with '10BASE-T and 10BASE-Te' - except where 10BASE-Te has a different requirements from 10BASE-T.

As a simple examples consider Clause 13 system considerations for 10Mb/s networks - it has tables that list numbers for 10BASE-T - are these the same for 10BASE-Te or not - similarly for all the mentions for 10BASE-T in Clause 28 Auto-Negotiation.

SuggestedRemedy

Suggest either [1] replace every instance of '10BASE-T' with '10BASE-T and 10BASE-Te' except where 10BASE-Te has a different requirements from 10BASE-T or [2] state somewhere that the all requirements and specifications for 10BASE-T apply to 10BASE-Te as well unless otherwise stated.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add statement in section 14.1.1.1 as follows:

j) All requirements and specifications for 10BASE-T apply to 10BASE-Te as well unless otherwise stated.

Cl **35** *SC* **35.2.1** *P* **65** *L* **30** # 357

Law, David 3Com

Comment Type **TR** *Comment Status* **D**

At a minimum mention has to be made that the use of LPI requires that Annex 4A MAC. I'm also not to sure I'm crazy about the idea of just including subclause 22.7 be reference and applying it to the GMII rather than doing an equivalent subclause for the GMII, for example just looking at the first subclause of 22.7a I note it references TXD<3:0> which isn't correct for the GMII (See same comment against Clause 46).

SuggestedRemedy

[1] Add the text 'The definition of low power idle signaling assumes the use of the MAC defined in Annex 4A for simplified full duplex operation (with carrier sense deferral). This provides full duplex operation but uses the carrier sense signal to defer transmission when the PHY is in low power idle mode.'.

[2] Add equivalents to subclause 22.7a through 22.7a.3.1 for the XGMII to the changes to Clause 46. Another idea may be to add much of 22.7.a, changed to be non onterface specific, to 78.1.3 to apply to all xMIIs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the text as proposed in [1].

Add a new subclause equivalent (and almost identical) to 22.7a through 22.7a.3.1.

Cl **46** *SC* **46.1.7** *P* **120** *L* **17** # 358
Law, David 3Com

Comment Type **TR** *Comment Status* **D**

At a minimum mention has to be made that the use of LPI requires that Annex 4A MAC. I'm also not to sure I'm crazy about the idea of just including subclause 22.7 be reference and applying it to the GMII rather than doing an equivalent subclause for the GMII, for example just looking at the first subclause of 22.7a I note it references TXD<3:0> which isn't correct for the XGMII (See same comment against Clause 35).

SuggestedRemedy

[1] Add the text 'The definition of low power idle signaling assumes the use of the MAC defined in Annex 4A for simplified full duplex operation (with carrier sense deferral). This provides full duplex operation but uses the carrier sense signal to defer transmission when the PHY is in low power idle mode.'.

[2] Add equivalents to subclause 22.7a through 22.7a.3.1 for the XGMII to the changes to Clause 46. Another idea may be to add much of 22.7.a, changed to be non onterface specific, to 78.1.3 to apply to all xMIIs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the text as proposed in [1].

Add a new subclause equivalent (and almost identical) to 22.7a through 22.7a.3.1.

Cl **45** *SC* **45.2.3** *P* **112** *L* **16** # 359
Lynskey, Eric Teknovus

Comment Type **E** *Comment Status* **D**

Table number does not match editing instructions.

SuggestedRemedy

Change from Table 45-1 to Table 45-82. Also change Table 45-2 to Table 45-83.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comment #39

Cl **45** *SC* **45.2.3.1** *P* **113** *L* **8** # 360
Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **D**

Clause 45 needs to be updated to reflect the changes introduced by 802.3av and possibly other Task Forces. Table 45-83, which is incorrectly marked as Table 45-2, does not have the updated speed selection in bits 3.05:2. There may be other updates that have not been included.

SuggestedRemedy

Get the latest version of Clause 45 and use that as the baseline for all changes.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.6.10** *P* **195** *L* **47** # 361
Marris, Arthur Cadence

Comment Type **ER** *Comment Status* **D**

Incorrect underlining

SuggestedRemedy

Delete the underlining from the subclause title and following text.

Also remove underlining on page 196.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **71.6.12** *P* **201** *L* **40** # 362
Marris, Arthur Cadence

Comment Type **ER** *Comment Status* **D**

Incorrect underlining

SuggestedRemedy

Remove underlining from subclause title and following text.

Also on following page 202.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **72.6.11** *P* **208** *L* **46** # 363
Marris, Arthur Cadence

Comment Type **ER** *Comment Status* **D**
Unnecessary under-lining

SuggestedRemedy
remove the unnecessary under-lining in 72.6.11 on pages 208 and 209

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **74** *SC* **74.5** *P* **214** *L* **11** # 364
Marris, Arthur Cadence

Comment Type **ER** *Comment Status* **D**
Two new items added not one.

SuggestedRemedy
Change text to:

Insert two new primitives after item (c) as shown below:

and underline item e)

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **74** *SC* **74.5.4.1** *P* **215** *L* **3** # 365
Marris, Arthur Cadence

Comment Type **ER** *Comment Status* **D**
Why is this paragraph crossed out?

SuggestedRemedy
Remove crossed out text.

Also remove all underlining from 74.5.4 and 74.5.5

Change:
"Insert 74.5.4 as shown below after 74.5.3"
to:
"Insert 74.5.4 and 74.5.5 as shown below after 74.5.3"

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

Accepting only the following:
Remove crossed out text.
Change:
"Insert 74.5.4 as shown below after 74.5.3"
to:
"Insert 74.5.4 and 74.5.5 as shown below after 74.5.3"

Rejecting:

Also remove all underlining from 74.5.4 and 74.5.5
- These are new text, it needs underlining.

Cl **01** *SC* **1.5** *P* **15** *L* **32** # 366
Obara, Satoshi Fujitsu Limited

Comment Type **E** *Comment Status* **D**
Add abbreviation "EEE" which is used in Clause 45 and 78.

SuggestedRemedy
Add the description "EEE Energy Efficient Ethernet" in Clause 1.5.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **22** *SC* **7a.2.2** *P* **32** *L* **0** # 367

Ofelt, David Juniper Networks

Comment Type **TR** *Comment Status* **D**

The cross reference for Tw_sys is wrong and it would match the text in clause 78 better if "Transmit Tw_sys" was given as "Tw_sys_tx".

SuggestedRemedy

Replace the crossreference to "78.4.2.3" with "78.2".
Replace "Transmit Tw_sys" with "Tw_sys_tx".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **7a.3** *P* **32** *L* **0** # 368

Ofelt, David Juniper Networks

Comment Type **TR** *Comment Status* **D**

There is a refernece to "Resolved Transmit Tw". I think this is one of the variables in the clause 78 state diagrams. If so, it doesn't exactly match one of the current variables and there is no cross reference.

SuggestedRemedy

Add a cross reference to 78.4.2.3 where the variables are defined and change the "Resolved Transmit Tw" to match one of the variables in that section.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Use the variable name & xref from comment #367.

Cl **22** *SC* **7a.3.1** *P* **32** *L* **0** # 369

Ofelt, David Juniper Networks

Comment Type **TR** *Comment Status* **D**

Cross reference is wrong and "Transmit Tw_sys" should be "Tw_sys_tx"

SuggestedRemedy

Change the cross reference from "78.4.2.3" to "78.2" and change "Transmit Tw_sys" to "Tw_sys_tx" to match the parameter names in that section.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The variable used in this section should be Tw_sys_rx, with xref 78.5.

Cl **22** *SC* **22.9a** *P* **30** *L* **0** # 370

Ofelt, David Juniper Networks

Comment Type **T** *Comment Status* **D**

There is no discussion on when the RX_CLK can restart after the deassertion of LPI, and if there is any delay after the deassertion of LPI and the arrival of new receive data.

SuggestedRemedy

Add some verbage about the details of what can happen with the RX_CLK, RXDV, and RXD when the LPI state is deasserted.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add a sentence after "if and only if the
RX_CLK_stoppable bit is asserted." on p.30, l.6.

"The PHY may restart RX_CLK at any time while it is asserting LPI, but shall restart RX_CLK so that at least one positive transition occurs before it deasserts LPI."

The arrival of new receive data is controled by Tw and is described in Clause 78.

Cl **78** *SC* **2** *P* **232** *L* **0** # 371

Ofelt, David Juniper Networks

Comment Type **T** *Comment Status* **D**

Figure 78-3 nicely describes the parameters Ts, Tq, and Tr. The other paremeters in section 78.2 would benefit from a figure- especially the Tphy_shrink_tx and Tphy_shrink_rx parameters.

SuggestedRemedy

Add a figure or an explanation that gives some intuition on what Tphy_shrink_tx and Tphy_shrink_rx signify.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will take figure from David Law's presentation from past meeting.

Specific picture TBD.

Cl **55** *SC* **55.3.5.4** *P* **177** *L* # 372
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **D**

case of false is not consistent throughout this diagram (and possibly other diagrams)

SuggestedRemedy

Make the case consistent

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comment #79 and #81

This is part of the editor's state diagram presentation.

Cl **45** *SC* **44.2.7.13a** *P* **117** *L* **15** # 373
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **D**

In Table 45-145, the descriptions say 'EEE is supported...'. This text should be changed to say 'Advertise that the PHY is EEE capable...'. The descriptions of these bits should also be changed similarly.

SuggestedRemedy

As comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7.14a** *P* **118** *L* **16** # 374
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **D**

Add the link partner advertisement table.

SuggestedRemedy

Copy Table 45-145, but use the title 'Link Partner EEE Capability Register', change all bits to RO, change description to 'Link Partner has EEE capability for ...'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **25.2.7.13a** *P* **117** *L* **5** # 375
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **D**

The definition of the extended next page here belongs in 55.6.

These bits will fit in the reserved bits in the Extended Next Page in 55-10 (no new extended next page is required).

Also: Do we need to advertise backplane PHY EEE capability in these bits?

SuggestedRemedy

Delete the text here, move to a table in 55.6.

Use the existing reserved bits in the existing extended next page.

[alternatively, we can use a new extended next page, but this will increase startup time (by~1/4 second?)]

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(comment #416 may result in splitting the register to separate BASE-T & BASE-K)

Definition of bits in extended next page can be added in 55.6 (Table 55-11).

Add a column for extended next page bit numbers in table 45-145 - note that comment #415 is adding the unformatted next page bit numbers.

Change the text of 45.2.7.13a:

This register defines the EEE advertisement that is sent in the unformatted next page following a EEE technology message code as defined in 28C.12 or in 73A.4. For PHYs that negotiate extended next page the EEE advertisement is sent as part of the 10GBASE-T/1000BASE-T technology message defined in 55.6.1. The assignment of bits in the EEE advertisement register is
shown in Table 45-145.

Cl **55** *SC* **55.3.5.4** *P* **174** *L* # 376

Parnaby, Gavin Solarflare Communica

Comment Type **ER** *Comment Status* **D**

Typo: loc_lpi_req should be tx_lpi_req in TX_WN in Figure 55-15a

SuggestedRemedy

replace loc_lpi_req with tx_lpi_req

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **177** *L* **38** # 377

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **D**

The current EEE Tx state machine enforces 9 LDPC frames of wake (IDLE characters) following alert. During these frames the state machine replaces XGMII data with IDLE characters. The value of tx_coded that goes into the scrambler is ambiguous in some cases (see comment #12).

It would be preferable (and simpler) for the tx state machine to pass XGMII data through transparently. Higher layer system requirements mandate that the wake sequence is at least 9 frames of IDLE.

SuggestedRemedy

Figure 55-16b; EEE transmit state diagram
Transition from SEND_ALERT to TX_NORMAL when tx_lpi_alert_timer_done=true. Delete the SEND_WAKE and SEND_ERROR states and transitions to & from those states.
Figure 55-15a; delete TX_WN and TX_WE and the transitions to and from those states.
Add a transition from TX_L to TX_C when T_TYPE(tx_raw)=I and a transition from TX_L to TX_E when T_TYPE(tx_raw)=(S+E+D+T)

Similarly, it might also be desirable to change the SEND_SLEEP state to pass through XGMII codewords, instead of forcing tx_coded<=LP_IDLE.

Proposed Response *Response Status* **W**

For discussion by group.

See presentation on state machine changes.

Cl **55** *SC* **55.3.5.4** *P* **174** *L* # 378

Parnaby, Gavin Solarflare Communica

Comment Type **TR** *Comment Status* **D**

In Figure 55-15a, the transition from WX_WN to TX_WE should use tx_lpi_active=true. Currently it uses tx_lpi_active=false. [i.e. transition from normal to error if a non-IDLE character is detected before the PHY has completed wake].

SuggestedRemedy

Change the transition from TX_WN to TX_WE to

tx_lpi_active=TRUE *
T_TYPE(tx_raw)=((C.!I)+D+E+LI+S+T)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.5.4** *P* **177** *L* **12** # 379

Parnaby, Gavin Solarflare Communica

Comment Type **TR** *Comment Status* **D** *definitions*

The assignments to tx_coded in this state diagram are not made correctly. Also for rx_raw in 55-16a.

New constants should be defined within 55.3.5.2.1 for 1) a 65 bit block of LP_IDLE characters to be sent to the LDPC encoder, 2) a 65 bit block of IDLE characters to be sent to the LDPC encoder, 3) a 72 bit block of LP_IDLE characters to be sent to the XGMII interface and 4) a 72 bit block of IDLE characters to be sent to the XGMII interface
[also use existing LBLOCK_T instead of /LF/ within SEND_ERROR]

SuggestedRemedy

Add the following definitions to 55.3.5.2.1
LPI_BLOCK_T<64:0>
65 bit vector to be sent to the LDPC encoder containing /LP/ in all the eight character locations
I_BLOCK_T<64:0>
65 bit vector to be sent to the LDPC encoder containing /LP/ in all the eight character locations
LPI_BLOCK_R<71:0>
72 bit vector to be sent to the XGMII interface containing /LP/ in all the eight character locations
I_BLOCK_R<71:0>
72 bit vector to be sent to the XGMII interface containing /LP/ in all the eight character locations

Use these definitions in place of IDLE/LP_IDLE in Figures 55-16b, 55-16a.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
(corrected copy/pasteerror)

Add the following definitions to 55.3.5.2.1
LP_BLOCK_T<64:0>
65 bit vector to be sent to the LDPC encoder containing /LP/ in all the eight character locations
I_BLOCK_T<64:0>
65 bit vector to be sent to the LDPC encoder containing /I/ in all the eight character locations
LP_BLOCK_R<71:0>
72 bit vector to be sent to the XGMII interface containing /LP/ in all the eight character locations
I_BLOCK_R<71:0>
72 bit vector to be sent to the XGMII interface containing /I/ in all the eight character locations

This is part of the editor's state diagram presentation.

Cl **55** *SC* **55.3.4a.3** *P* **169** *L* **5** # 380

Parnaby, Gavin Solarflare Communica

Comment Type **TR** *Comment Status* **D**

tx_lpi_active is not used consistently.

State diagram 55-15a relies on tx_lpi_active becoming equal to false after the wake signal. REFRESH_A/.../REFRESH_D/QUIET are set when tx_lpi_active is true; refreshes are not transmitted after the alert, so for this logic to work tx_lpi_active must be set false as soon as the alert state is entered.

In draft 2.0 tx_lpi_active is set to false in SEND_ALERT, which matches the refresh logic, but not 55-15a.

The tx_lpi_active variable cannot be used by both state machines.

[if the remedy in comment #10 is used then I think it removes this issue]

SuggestedRemedy

Either

i) follow comment #10 and pass XGMII codewords

or if comment #10 is not adopted

ii)
Add a second control variable tx_lpi_qr_active. tx_lpi_qr_active is set true when the PHY is sending quiet/refresh signaling. tx_lpi_active is set to true whn the PHY is sending sleep, quiet/refresh, alert and wake signaling.
Change the lpi_tx_mode description so that the REFRESH_X and QUIET values use tx_lpi_qr_active instead of the existing tx_lpi_active.
Change the lpi_tx_mode description to say
'The variable is set to NORMAL when tx_lpi_qr_active is false, indicating the PCS will encode code-groups as specified by the state diagrams 55-15, 55-15a, 55-16b.'
Change 55-16b so that tx_lpi-active is set to true within SEND_SLEEP. Change the tx_lpi_active within SEND_INITIAL_QUIET and SEND_QR to tx_lpi_qr_active. Change the tx_lpi_active<=FALSE within SEND_ALERT to tx_lpi_qr_active<=FALSE.
Change the text in 55.3.4a and 55.3.4a.3 to reflect these changes

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This is part of the editor's state diagram presentation.

The reference to 'submitted comment #10' refers to comment #377.

Cl **36** *SC* **36.2.5.2.1** *P* **75** *L* # 381

Kasturia, Sanjay Teranetics

Comment Type **T** *Comment Status* **D**

Submitted on behalf of Oren Sela
In figure 36-6 - PCS transmit code-group state diagram, in state IDLE_I2B the current text is:
if tx_oset=/LI/
then (tx_code-group ? /D16.2/)
else (tx_code-group ? /D26.4/)
This looks like an error

SuggestedRemedy

Text should be changed to:
if tx_oset=/LI/
then (tx_code-group ? /D26.4/)
else (tx_code-group ? /D16.2/)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **46** *SC* **Table 46-3** *P* **123** *L* **10** # 382

Szczepanek, Andre HSZ Consulting

Comment Type **T** *Comment Status* **D**

This is a generic comment on the encoding of LPI as a new XGMII character and applies to 10GBASE-X and 10GBASE-R PCS's

I see no value in creating a new XGMII character for LPI when there already is a viable alternative in the existing standard - Sequence ordered sets !, without requiring wholesale redesign and verification of existing implementations. The 10GBASE-X implementation of LPI is particularly complicated and difficult to validate.

LPI could easily be signalled by defining a new Sequence ordered set for LPI. Sequence ordered sets already support clock compensation.

SuggestedRemedy

Use an existing signaling mechanaism (Sequence ordered sets) to signal LPI. This will considerably simplify the impact of EEE on the existing clauses and implementations whilst maintaining functionality.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The TF has discussed and rejected this proposal previously. Using a new XGMII character is consistent with the treatment of MII & GMII. Using sequence ordered sets (instead of a new control character) would ease the complexity of some new designs, but would add to the complexity of others.

Cl **74** *SC* **Figure 74-1** *P* **213** *L* **36** # 383

Szczepanek, Andre HSZ Consulting

Comment Type **TR** *Comment Status* **D**

No path is shown for tx_quiet from (or through) the FEC layer to the PMD. tx_quiet must pass through or around the FEC layer in order to disable the PMA/PMD of the PHY. Similarly there is no path for rx_quiet.

SuggestedRemedy

Add tx_quiet, rx_quiet to the PMA service interface of the FEC sublayer

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Please refer to #434

Cl **74** *SC* **74.7.4.8** *P* **217** *L* **6** # 384

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

FEC doesn't have frames, it has blocks. Even though once or twice the current Clause 74 has slipped up and used the wrong word, don't extend that error.

SuggestedRemedy

Replace all occurences of "frame" in the text you have added to Clause 74 with "block".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **74** *SC* **74.7.4.1** *P* **216** *L* **30** # 385

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

The reverse gearbox function in the FEC is suppose to get block lock on the data from the PCS using the block lock state diagram in Figure 49-12. This is in the current standard. This doesn't work if deterministic blocks are to be produced with scrambler_reset.

The existing subclause does say that the reverse gearbox may not be required when the XSBI is not implemented.

SuggestedRemedy

Add an edit to the subclause to say that when FEC is present, the reverse gearbox is not used and 66-bit block lock is provided from the PCS to the FEC in an implementation dependent manner.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **74** *SC* **74.7.4.8** *P* **217** *L* **6** # 386

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

The use of "deterministic frame" implies that the FEC will be receiving one frame content that it can look for. This is not the case. It may receive a frame that is all LPI, one that is all normal idle, or one that starts out LPI and switches to normal idle (wake starts during the beginning of a refresh).

I couldn't find a prohibition on sending frames too early during waking though one would be foolish to do so. There is just infomative material to explain the maximum wake up time. If the MAC sends frames too soon, is it assumed that it is okay for rapid block sync to not work. It seems like that should be okay.

SuggestedRemedy

If it is acceptable for rapid block lock to only work for blocks that are all LPI or all idle, explain that lock needs to look for one of two deterministic blocks. If it needs to also work for a block with a transition between LPI and idle which means 256 possible blocks, state that.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The deterministic fec blocks are transmitted only during wake up. That too, these blocks succeed 12us of scrambled IDLE codewords. There is 1us more wake time budgeted for in the total system wake time. If the MAC ignores the total system wake time and sends frames too soon, then it is in violation of the EEE time budget. At which point the receiver will not wake up properly.

Cl **40** *SC* **40.3.1.3.4** *P* **93** *L* **22** # 387

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Changes for EEE should only be added in a way that makes it clear what non-EEE devices are required to support. Equations that apply to non-EEE devices should not be changed.

SuggestedRemedy

Put in a separate set of equations that apply when EEE mode is enabled to devices that support EEE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

If the document is restructured so that functions related to the optional low power idle mode are moved to an annex or a separate clause, this comment will be overtaken by events.

If the document is not restructured, then a separate set of equations should not be necessary. When the optional Low Power Idle mode is not implemented, or requested by the LPI client (e.g. "assert low power idle" is not present at the GMII), the behavior of the PHY, including the equations of 40.3.1.3.4, is intended to revert to the original behavior.

The variable loc_lpi_req is FALSE when "assert low port idle" is not present at the GMII per Figure 40-9. When the optional low power idle mode is not implemented, loc_lpi_req required to assume the value of FALSE per 40.3.1.3.4.

The equation for Sdn[3] reverts to its original form when loc_lpi_req = FALSE.

The equation of Sdn[2] adds a term "and (tx_mode != SEND-Z)" which is a redundant term for a non-EEE 1000BASE-T implementation and has no impact on externally observable behavior.

If loc_lpi_req = FALSE, then loc_update_done must be FALSE per Figure 40-15 (see also 40.4.5.1) and the equation for Sdn[1] reverts to its original form.

The equation for cext_err adds the term "and (TXDn[7:0] != 0x01)" which does modify the externally observed behavior of a 1000BASE-T PHY. However, this change impacts how the PHY responds to the presence of a reserved code (for non-EEE implementations) at the GMII. This discrepancy may have little practical impact, but may be removed by.

a) Creating separate versions of this specific equation for the non-EEE and EEE cases or...
b) Replacing the term "and (TXDn[7:0] != 0x01)" with "and (loc_lpi_req = FALSE)" which realizes the same Low Power Idle mode behavior but also causes the equation to revert to its original form when Low Power Idle mode is not engaged or implemented.

Cl **40** *SC* **00** *P* **84** *L* **1** # 388

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Behavior changes for EEE behavior should only be exhibited when connected to an LP that also supports EEE.

SuggestedRemedy

Through out the Clause, statements such as "When the PHY supports Energy Efficient Ethernet," or "When Energy Efficient Ethernet is <not> implemented" should be replaced with "When Energy Efficient Ethernet is <not> enabled"

In the case of the state machines, this might also be done with an EEE_enable variable that conditions going into LPI state and any other EEE behaviors.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Refer to comment #423.

Cl **46** *SC* **46.3** *P* **120** *L* **42** # 389

Thaler, Pat Broadcom

Comment Type **ER** *Comment Status* **D**

No behavior changes should be exhibited between an EEE supporting device and a non-EEE supporting device. This note implies a new requirement for all Reconcilliation sublayers to support a clock that may be halted.

SuggestedRemedy

Qualify the new sentence so that it only applies when EEE support is enabled.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

A note is not normative, therefore no requirement is implied. The purpose of the note is to draw the reader's attention to the referenced subclause which details the circumstances in which the clock may be stopped.

Cl **46** *SC* **46.3.1.2** *P* **121** *L* **36** # 390

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This requirement is stated such that it applies to all PHYs - even those with PMDs that don't support low power idle. EEE requirements should ony apply to those PHYs where it is applicable and supported.

SuggestedRemedy

Make it clear in the table that the new code should only be sent when EEE is supported and enabled and that reception of the code is only required in that case. Also make the new sentence only applicable when EEE is supported and enabled.

Ensure that through out the clause that new requirements are not placed on non-EEE devices and that EEE supporting devices are only to exhibit new behavior to peers or across the XGMII when EEE mode is enabled with EEE supporting partners.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the sentence:

"A PHY that supports the optional LPI function shall interpret the combination of TXC and TXD as shown in Table 46-3 as an assertion of low power idle."

Cl **48** *SC* **48.2.4** *P* **127** *L* **12** # 391

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

Since D20.5 is a member of the PCS code group in a way similar to the other codes, it should appear on the line in the table rather than as a not.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comment #124, 125

Cl **48** *SC* **48.2.4.2** *P* **128** *L* **24** # 392

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This has been added as a requirement on all PCS sublayers even those that are part of PHY types where EEE support doesn't apply.

This and any other new requirements and behaviors for EEE support should only apply when EEE is supported and enabled on the PCS.

SuggestedRemedy

After "with the following exceptions that apply when optional EEE operation is enabled:" or similar language.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "with the following exceptions" to "with the following exceptions for PHYs supporting the optional LPI function"

Cl **48** *SC* **48.2.4.2** *P* **128** *L* **47** # 393

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

This should appear under the same subclause heading as the rest of the variable changes and heading for 42.2.6.1.3 the next two subclauses have the wrong numbering.

SuggestedRemedy

Use the subclause numbers from the editor notes.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.4.2.3** *P* **129** *L* **3** # 394

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

The variables, counters and messages have been added with no indication that they only need to be supported devices that support EEE.

SuggestedRemedy

Either group all the variables, counters and messages requrired for EEE operation only in a separate subclause or indicate in the description of each one that it only applies when EEE is supported.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the note on p.128, l.49 can be changed in a similar manner to comment #483 response:

""NOTE: If the optional low power idle function is implemented, then this variable is affected by the LPI receive state diagram. If the LPI function is not implemented then this variable is identical to deskew_align_status controled by the deskew state diagram.

There is no necessity to group, or otherwise modify the descriptions for variables etc. that are associated with options. It is assumed that any competent designer (or synthesis tool) will be able to remove
redundant hardware for options that are not required (the same reasoning as for comment #419).

Cl **48** *SC* **48.2.6.2** *P* **130** *L* **24** # 395

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

Titles of the state diagrams in the note differ from the titles on the diagram.

SuggestedRemedy

Change the titles in the note to those on the diagrams.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.6.2** *P* **131** *L* **3** # 396
Thaler, Pat Broadcom

Comment Type **T** *Comment Status* **D**

||LPIDLE|| needs to be added to the list of Constants.

SuggestedRemedy

Add ||LPIDLE||

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.6.2** *P* **131** *L* **26** # 397
Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Altering state machine behavior with a note isn't a good idea. It should be done in the state machine or the supporting text for the state machine. Also, "one row" implies that the D20.5 always goes in the same lane which is not the intent.

SuggestedRemedy

One approach would be to modify the definitions for the constants ||R|| and ||K|| to state that if TX=||LPIDLE||, one code-group of the column is replaced by /D20.5/ as defined in 48.2.4.2. Or create two new constants to represent the LP Idle versions of ||R|| and ||K|| and in the state boxes use an if TX=||LPIDLE|| to send the correct constant.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Modify the definitions of ||R|| and ||K|| to state that if the optional LPI function is supported then one lane (randomly selected) is replaced by /D20.5/ during ||LPIDLE|| as defined in 48.2.4.2.

Cl **48** *SC* **48.2.6.2** *P* **130** *L* **24** # 398
Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

There is nothing in the state machines that conditions producing LP idle signaling on EEE being enabled. For backwards compatability, LP idle should only be used when EEE is enabled.

SuggestedRemedy

Add an eee_enable or lpi_enable variable and condition new behavior on it being TRUE.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The definition of the RS only allows LPI signaling when both link partners have indicated LPI capability. Therefore the PCS does not need any such restriction. This approach is similar to that used for other options such as carrier extension.

Cl **48** *SC* **48.2.4.2** *P* **128** *L* **25** # 399
Thaler, Pat Broadcom

Comment Type **ER** *Comment Status* **D**

"row": Clause 48 doesn't have rows, it has lanes. .

SuggestedRemedy

Use lane.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Six instances to replace in this clause.

Cl **48** *SC* **48.2.4.2** *P* **128** *L* **43** # 400
Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

"in one row" makes it sound like they all go in the same row/lane.

SuggestedRemedy

"inserting /D20.5/ in one code-group of each column with a random uniform distribution across the lanes during"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.6.2** *P* **132** *L* **1** # 401

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

Figure 48-8 should appear before Figure 48-9

SuggestedRemedy

Correct the ordering of the figures.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **48** *SC* **48.2.6.2.2** *P* **41** *L* **132** # 402

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

"is not implemented" should be "is not enabled"

New behavior should only occur when the option is enabled

SuggestedRemedy

Make the change above. Also check for other occurances of "implemented" or "supported" and change to "enabled" where they describe executing a new behavior.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "is not implemented" to "is not supported"

The TF did not deem it necessary to specify a "mode" for EEE because the standard precludes sending LPI unless it is supported by both link partners. This matches the treatment of other options within this clause (such as half-duplex, full-duplex and others).

Cl **00** *SC* **0** *P* *L* # 403

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

Terminology consistancy, the draft varies between calling the functionality. Energy Efficient Ethernet (in some cases only Energy is capitalized), EEE, some varient of Low Power Idle (such as low power idle signaling in Clause 22), and LPI.

It also varies between "with ___ capability", "supported", "___-compliant" and "implemented" referring to the option's presence. Often these are used where it should say "enabled" because EEE capability is something that can be disabled for backwards compatibility with devices that don't support it.

SuggestedRemedy

Try to be consistant across clauses in referring to this capability especially in the name for the capability. My preference is to use "EEE" as the name for the capability and leave LPI as the name for a signal that is used by that capability.

Review all statments that describe new behavior such as sending of LPI and ensure that they apply only when the capability is enabled. I've tried to catch these and put in specific comments but I may not get them all. 49.2.4.4 contains a good example of what should be done except that "supported" should be "enabled."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28C** *SC* **28B.3** *P* **247** *L* **0** # 404

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

EEE needs to be added to Priority resolution.

SuggestedRemedy

I suggest that EEE resolution should occur after priority resolution for PHY selection. If both sides support EEE for the selected PHY type, then EEE operation is enabled.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

There is no need to add EEE to the priority resolution table as the EEE support resolution is simple and amply described in clause 78. This approach has worked adequately for 1000BASE-T MASTER/SLAVE resolution and many other more complex ability exchanges.

Cl **73** *SC* **73.7.6** *P* **249** *L* **1** # 405

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

EEE needs to be added to Priority resolution. Since EEE is in an annex and unlike Clause 28, priority resolution is in the body, I'm not sure if it should be added to the existing resolution of 73.7.6 or as an additional subclause in Annex 73A but it needs to be somewhere.

SuggestedRemedy

I suggest that EEE resolution should occur after priority resolution for PHY selection. If both sides support EEE for the selected PHY type, then EEE operation is enabled.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

There is no need to add EEE priority resolution as the EEE support resolution is simple and amply described in clause 78. This approach has worked adequately for 1000BASE-T MASTER/SLAVE resolution and many other more complex ability exchanges.

Cl **00** *SC* **0** *P* **30** *L* **36** # 406

Thaler, Pat Broadcom

Comment Type **ER** *Comment Status* **D**

Insert new subclauses with numbering like 7a to avoid renumbering later ones will make the standard more complex to maintain.

It also isn't clear what the expectation is when this becomes part of a new edition or revision of 802.3 - will the number-letter designations be retained or will renmubering be done then?

SuggestedRemedy

Make 22.7a be 22.7 and renumber the PICS to 22.8. Treat other insertions of new subclauses, figures and tables similarly.

If the current numbering is to be maintained, put in an editorial instruction at the beginning on what is expected when this is integrated into IEEE Std 802.3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #196. Note that part of the suggested remedy contradicts that in #196

Cl **22** *SC* **22.2.1** *P* **25** *L* **10** # 407

Thaler, Pat Broadcom

Comment Type **T** *Comment Status* **D**

When is LPI signaling in operation? Is it only when in low power idle or is this intended to apply when LPI operation has been enabled. Given the nature of the chnage to the figure in 22.7a, it looks like the latter is intended and "LPI signaling is in operation" is a misleading way to describe that.

SuggestedRemedy

It would be better to give the ability to operate with low power a name like EEE mode and talk about that mode being enabled or disabled. Leave "LPI signaling" to mean only the signals that are used when actually in the LPI state.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Reword the sentence to make it clearer:

"The mapping changes slightly when low power idle (LPI) signaling is in operation..."

becomes

"The mapping is changed if the optional low power idle (LPI) signaling is supported..."

Cl **22** *SC* **22.2.2** *P* **26** *L* **46** # 408

Thaler, Pat Broadcom

Comment Type **ER** *Comment Status* **D**

What does the editor's instruction mean? How is 22.2.2 to be changed to show LPI signaling? This applies to the other places where this instruction is given with no change to the subclause shown. And where there is a change shown, the editing instruction doesn't need to say "for LPI signaling"

SuggestedRemedy

Make the instructions clear.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Instruction removed in response to comment #4

Cl **22** *SC* **22.2.2.4** *P* **27** *L* **40** # 409

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

The addition of TX_ER here changes the requirements for non-EEE 100BASE-TX PHYs. In the existing 802.3 standard, when TX_ER is asserted while TX_EN, the PHY is required to insert an error somewhere in the frame but that is not required to happen at the time TX_ER is asserted. Therefore, in the current IEEE 802.3 standard TXD<3:0> may effect the PHY during the time that TX_ER is asserted.

The added new behaviors in the next paragraph and in Table 22-1 are written such that they apply to all 100BASE-T PHYs and would make existing 100BASE-T PHYs non-compliant.

802.3az should not make changes that make a compliant 100BASE-T PHY non-compliant. Any changed requirement should only apply to PHYs supporting an EEE option when EEE is enabled.

SuggestedRemedy

Rewrite the changes to this subclause so that they only apply to devices when EEE operation is enabled. That may require insertion of a separate table for EEE PHYs or a column to indicate that a row in the table only applies to EEE operation and is treated as reserved by non-EEE PHYs.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The text states that "while TX_EN and TX_ER are both deasserted, TXD<3:0> shall have no effect on the PHY."

The commenter then highlights conditions where one or other of TX_EN and TX_ER are asserted. Therefore the text is entirely compatible with the behavior required. It should be noted that the current standard requires that TXD<3:0> has no effect on the PHY whenever TX_EN is deasserted. The change makes a single exception for the condition where TX_EN is deasserted, TX_ER is asserted and TXD<3:0> = 0001.

Cl **00** *SC* **0** *P* *L* # 410

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D** *doc-structure*

The way that EEE operation has been added to the base clauses for PHYs other than 10BASE-T produces a risk that existing non-EEE PHYs and Reconcilliation sublayers will be made non-compliant. The requirements have also been added in a way that will make EEE PHYs incompatible with currently compliant non-EEE devices. My comments on 22.2.2.4 and 22.2.2.7 are examples of where that has happened.

The addition of EEE to IEEE 802.3 should not make existing IEEE 802.3 compliant devices non-compliant. EEE devices should be able to work with non-EEE devices at the xMII and MDI interfaces. It should be optional to support and any new requirements and behaviors should only apply to devices that support EEE/LPI operation. Any behaviors at the xMII or MDI that are outside what is specified for non-EEE devices should only apply when EEE operation is enabled so that EEE devices interoperate properly with non-EEE devices.

SuggestedRemedy

The safest way to do this would be to create separate clauses for behavior when EEE is enabled similar to the creation of annex 4A for full-duplex, though that would greatly increase the size of the document. The alternative is to carefully use the same type of formula any time you change a requirement for EEE. That is, the old requirement needs to be proceeded by something like "When EEE operation is not enabled," and the new requirement by "When EEE operation is enabled,".

I have used enabled rather than supported because a device that supports EEE should not exhibit a new behavior when attached to a device that doesn't support EEE. For a PHY, this applies both to the xMII interface when attached to a Reconcilliation layer that doesn't support EEE and to the MDI when the link partner PHY doesn't support EEE or isn't able to enable it because the link partner's Reconcilliation sublayer doesn't support it.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Task force to decide on whether a change will be made to the document structure or whether each specific instance of inconsistency/incompatibility in the description of operation/compliance of non-EEE operation will be addressed.

Cl **22** *SC* **22.2.7** *P* **29** *L* **13** # 411

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

By adding this as a requirement on any "PHY that supports low power idle operation" you have made these PHYs incompatible with existing Reconcilliation sublayers. Such Reconcilliation sublayers do not understand the value 0001 on RXD<3:0>.

A compliant phy supporting low power idle operation should be able to interoperate with Reconcilliation sublayers and PHYs that do not support it.

SuggestedRemedy

This requirement and any other new requirements or behaviors should only apply when low power idle operation is enabled and low power idle operation should only be enabled when attached to other devices that also support low power idle operation.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The "shall" is not appropriate as it indicates a PHY requirement. Therefore reword as follows:

"If the optional LPI operation is supported, the PHY may indicate that it is receiving low power idle by asserting the RX_ER signal and driving the value 0001 onto RXD<3:0> while RX_DV is de-asserted."

Cl **22** *SC* **22.2.2.9a** *P* **30** *L* **4** # 412

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This indicates that RX_CLK may be stopped which is not consistant with 22.2.2.2 which says that RX_CLK is continuous and only says that it may be high or low for a period not to exceed twice the nominal clock period.

SuggestedRemedy

Make the subclauses consistant. If RX_CLK is stoppable, that needs to be indicated in 22.2.2.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add to the end of the paragraph finishing on p.27, l.29.

"RX_CLK may be stopped by the PHY during LPI when Clock stop enable is asserted (see 22.2.2.9a and 45.2.3.1.3a)"

Cl **28C** *SC* **28C.12** *P* **247** *L* **39** # 413

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

There is no reason to specify both an extended next page message code and an unextended one. The third paragraph of 28C defines a mechanism for packing a Message page and up to two unformatted code fields into a single extended next page so once you have defined an unextended next page message, you have also defined an extended one that carries the same information.

However, time per next page exchange can be quite long - on the order of a quarter of a second per page which is why we defined extended next pages and required their use for 10GBASE-T. Note that support for extended next page also uses faster bursts and shorter time between bursts which shortens time per page as well as the number of pages.

SuggestedRemedy

It would be better to require Extended Next Page support for EEE.
If there is a reason to allow for 16 bit page_size for next page, then only specify a message code for unextended pages which can be carred in extended pages using the packing already specified for 28.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

(the TF will discuss making Extended Next Page mandatory (as per comment #110), if this is rejected then the following response applies. Comment #375 puts EEE into clause 55 definition.)

Delete message code 11 from the table and delete 28C.13 add the following to 28C.12:

"For PHYs that negotiate extended next page the EEE advertisement is sent as part of the 10GBASE-T/1000BASE-T technology message defined in 55.6.1."

Cl **28C** *SC* **28C.12** *P* **247** *L* **40** # 414

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

"at least one unformatted next page" A message should be fixed format.

SuggestedRemedy

use "one unformatted next page" - there are currently only 6 EEE auto-neg PHY types and if you are concerned about running out of the 11 bits, you could do separate bit map assignments for BASE-T and backplane PHYs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28C** *SC* **28C.12** *P* **247** *L* **41** # 415

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This comment also applies to 28C.13. The exact placement of the data in the message needs to be specified. It would be better to do this in a format that is similar to what is done for other next page messages.

Also, for unformatted next page, you don't say which register bit corresponds to which bit in the unformatted next page. (This last part is the reason for the TR.)

SuggestedRemedy

See 40.5.1.2 and 55.6.1 for examples.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This is a change to 45.2.7.13a

Add a column to Table 45-145 for unformatted next page bit number.

Cl **45** *SC* **45.2.7.13a** *P* **117** *L* **3** # 416

Thaler, Pat Broadcom

Comment Type **T** *Comment Status* **D**

There is no reason to send EEE capabilities for backplane PHYs when using Clause 28 auto-neg or for BASE-T PHYs when using Clause 73 auto-neg. They two classes of PHYs use different auto-negotiation.

Also, Clause 73 next pages are always equivalent to Clause 28 extended next pages. Therefore "For PHYs that negotiate extended next page support doesn't apply to them" so you need to add text to cover Clause 73 auto neg.

Since backplane phys have 32 U bits in a message there is no reason to restrict it to 11 bits. And with higher speeds coming out there may be enough new Clause 73 auto-neg PHYs to need more bits. If any additional BASE-T PHYs are defined they are also likely to require extended next pages as 10GBASE-T did and have 32 bits available.

SuggestedRemedy

Define the mapping at least for 16 bits for extended next pages and Clause 73.

Consider specifying just sending the relevant bits for the auto-neg type allowing the bit usage to overlap for the two auto-neg types.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The additional column is defined for bit mapping. BASE-T capabilities are only sent in Clause 28 or 55 defined frames; BASE-K capabilities are only sent in Clause 73 defined frames.

Define the mapping for all 16 bits. Do not use overlap.

The TF may discuss using separate registers for clause 28 and clause 73 autoneg.

Cl **73A** *SC* **73A.4** *P* **249** *L* **33** # 417

Thaler, Pat Broadcom

Comment Type **T** *Comment Status* **D**

Since the register is 16 bits, you might as well allow for use of 16 bits here. With extended next pages, 16 bits are available and any new PHY types are likely to support extended.

I made a similar comment on 45.2.7.13a.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "6:0" to "15:0" and "22:16" to "31:16"

Cl **45** *SC* **45.5.3.7** *P* **119** *L* **11** # 418

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

These additions to the PICS make every existing PCS, even PCS types don't have the option to support EEE, and Clause 45 AN implementation non-compliant. There is no reason to make these registers mandatory for devices that don't support EEE.

45.2 already documents the behavior when registers that the device doesn't support are accessed and that requirement is enough to provide backwards compatibility for management that doesn't know whether a device supports EEE.

Also the PCS items need to be conditional on PCS.

SuggestedRemedy

Add these registers in the same way that requirements for 10GBASE-T and other new optional capabilities were added. Define an option (see 45.5.3.6 and 45.5.3.2 for examples). You could use EEE for the option name.

In the status column for each of these, make them mandatory conditional on EEE support. If the option is EEE, you would replace "M" with PCS*EEE:M

For the AN items, also define an option and replace "AN:M" with "AN*<option>:M". You probably can't use the same option name both places. For 10GBASE-T, they didn't. "AE" looks consistent with what they did in AN.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **36** *SC* **36.2.5.1.2** *P* **72** *L* **11** # 419

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Also applies to 36.2.5.1.3 and 36.2.5.1.5. A great many variables and counters have been added to support EEE when this support applies to only one of the PHY types that use this PCS.

It should be made clear here which PHY types EEE support applies to, i.e. 1000BASE-KX.

Also it should be made easy for the reader to determine which constant, variables and counters are required only for EEE support.

SuggestedRemedy

Insert into this Clause a statement of the PHYs for which EEE support applies.

Put the constant, variables and counters for EEE support into a separate subclause or subclauses (this is what I would prefer). Or you could mark each one to indicate that it is required only for EEE.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The Clause does not list PHY types for which the PCS & PMA may be used. Such PHY lists simply create headaches for future projects. Therefore a list of PHYs for which LPI is (currently) being defined would not be appropriate.

Currently, the variables and structures for optional behavior in the PCS are not highlighted. It is assumed that any competent designer (or synthesis tool) will be able to remove redundant hardware for options that are not required. If this approach is acceptable for half-duplex operation or carrier extension, then it is acceptable for LPI.

Cl **36** *SC* **36.2.5.2.1** *P* **73** *L* **50** # 420

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

There is text in the figures that says that the items in the dotted boxes are new but nothing says that they are optional. It isn't even clear whether the dotted boxes are intended to stay once this is integrated into 802.3 or are just to mark the new areas in the draft.

SuggestedRemedy

New behaviors for EEE support must only be required when the EEE option is applicable to the PHY type and supported by the PHY. Put explict text in that says that the states in the dotted boxes and transitions to and from them are required only for devices that support EEE.

Also, transitions to EEE states are only valid when EEE support is enabled. A PHY might support but be connected to a link partner that does not and in that case it should not exhibit any EEE behaviors. One clear way to do this would be to add an EEE enabled variable and condition any transitions to EEE states on this variable.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The change instruction identifies that the new states and transitions are in boxes. The boxes will therefore disappear at the next revision.

In most cases, the states and transitions required for optional behavior are not explicitly identified (e.g. CARRIER_EXTEND). It is left to the skill of the implementer to optimize away redundant structures.

However, to appease those who are especially nervous of EEE, add the following note:

Note: transitions B and C are required to support the optional LPI function.

Cl **36** *SC* **36.2.5.1.3** *P* **72** *L* **27** # 421

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

The text here isn't clear.

Also, the alternate terms should only be used when EEE is enabled.

SuggestedRemedy

Either make it clear what the equation for the alias is. I.e.
Alias for detect idle.
When EEE is disabled: (xmit....
When EEE is enabled: (xmit....

Or do the full equation using the variable for EEE enabled to condition use of the additional terms.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The equation will be reformatted according to comment #333.

The TF did not deem it necessary to specify a "mode" for EEE because the standard precludes sending LPI unless it is supported by both link partners. This matches the treatment of other options within this clause (such as half-duplex, full-duplex and others).

Cl **36** *SC* **36.2.5.2.6** *P* **79** *L* **5** # 422

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This state machine has no change marks but it has been changed, at least in the variable name sync_status to code_sync_status.

It would be preferable to have different state diagrams for the new functionality minimize the risk of making changes in the required behavior for existing devices, but if this is not done, then all state machine changes must be marked.

SuggestedRemedy

Mark all state machine changes so that they can be reviewed to ensure backwards compatibilty with a reasonable amount of effort.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comment #37

Cl **36** *SC* **36.2.5.2.6** *P* **80** *L* **1** # 423

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

New behavior should only apply when EEE operation is enabled, not when it is supported but disabled.

This also applies to 36.2.5.2.8.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The TF did not deem it necessary to specify a "mode" for EEE because the standard precludes sending LPI unless it is supported by both link partners. This matches the treatment of other options within this clause (such as half-duplex, full-duplex and others).

Cl **40** *SC* **40.1.3** *P* **84** *L* **16** # 424

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This behavior should only be permitted when EEE mode is enabled preferably conditional on having negotiated EEE through AN.

SuggestedRemedy

Begin the paragraph: "When EEE mode has been enabled, a 1000BASE-T PHY may ....

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Refer to comment #423.

Cl **49** *SC* **49.2.13.3.1** *P* **149** *L* **22** # 425

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

There appears to be a small bug in the state machine. If while in LPI, the link becomes degraded such that the receiver can not acquire rx_block_lock, but the signal is still able to trigger energy_detect=OK though perhaps sluggishly or intermittantly, then Link Failure will not be detected.

Also note that at these speeds, signal detect is difficult and it is possible that noise on a none terminated line may cause signal detection. It is so difficult at these speeds to set a threshold that doesn't unsquelch for noise and does for signal that we made it optional in Clause 72 and rely mainly on gaining alignment as a measure of link quality.

Each time LPI is sent on the link, energy_detect (which might be due to noise) will cause a transition from quiet to wake. If block lock cannot be acheived by the time the incoming signal returns to quiet, the state returns to quiet and the rx_tq_timer is restarted. This can go on indefiniately without detecting the failure because none of the timers time out.

This may delay failure detection or prevent it which hurts fast fail-over capabilities in end nodes and bridges. Also, if the machine doesn't get to RX_LINK_FAIL to assert block_lock = FAIL, triggering auto-neg to begin to restore the link can not start.

SuggestedRemedy

Start rx_tq_timer only in RX_SLEEP state so that cycles of signal detect that don't achieve alignment don't restart the timer.

Also, the definition of rx_tq_timer currently says that it is started in RX_QUIET but doesn't mention that it is also started in RX_SLEEP. Correct the definition to match the resolution of this comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Because signal_ok requires a recovered clock and energy_detect only requires energy on the line, there is an alternate solution:

Change transition from RX_QUIET to RX_WAKE to "signal_ok"

Thus, the signal must be good enough for a clock to be recovered in order to enter RX_WAKE but must lack enough energy to trigger energy_detect to return to RX_QUIET.

Cl **49** *SC* **49.2.13.3.1** *P* **150** *L* **9** # 426
Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

The transmitter timers should also specify the acceptable range - either by min and max columns as for the receivers or by stating a tolerance.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "Value" to "Max"

Add a column "Min" use "5" "1.6" "1.6" and "11" for rows 1, 2, 3, 4 respectively.

Cl **70** *SC* **70.1** *P* **194** *L* **28** # 427
Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

"more commonly known as" isn't correct. It is the name in this standard for the feature. This text appears in 3 other clauses. The comment applies to all of them.

SuggestedRemedy

Change the first sentence with "A _____ PHY with the optional Energy Efficient Ethernet (EEE) capability may enter ..." and remove 2nd sentence

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.1** *P* **194** *L* **33** # 428
Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

This also applies to the text added to 71.1

"receiver clocks (e.g. timing recovery, adaptive filter coefficients)"

adaptive filter coefficients and possibly other items that might be refreshed are not "receiver clocks"

SuggestedRemedy

"receiver clocks" should be "receiver state" as it is in two other clauses.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.6.4** *P* **195** *L* **11** # 429
Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

Delete "optional but" the next sentence covers when EEE isn't supported.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.7.1** *P* **197** *L* **18** # 430
Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Also applies to 70.7.2

Need to provide an indication that the new characteristics are only required when EEE is supported.

SuggestedRemedy

It may be easiest to refer to the new characteristics by putting them in a separate table or tables creating a subclause Additional transmitter and receiver characteristics for EEE.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
LPI Quiet is only used in EEE, so that is an indication.

Cl **71** *SC* **71.7.1** *P* **203** *L* **16** # 431
Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Also applies to 71.7.2

Need to provide an indication that the new characteristics are only required when EEE is supported.

SuggestedRemedy

It may be easiest to refer to the new characteristics by putting them in a separate table or tables creating a subclause Additional transmitter and receiver characteristics for EEE.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
LPI Quiet is only used in EEE, so that is an indication.

Cl **74** *SC* **74.5** *P* **214** *L* **12** # 432

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Editor's instruction says that one new primitive is added, but two are listed and others have has been added to the primitives but not to the list. Figure 49-4 shows 5 EEE primitives going between PCS and FEC.
tx_quiet, rx_quiet, scrambler_reset and rx_lpi_active going down and energy detect going up.

Also, indications go up the stack, requests go down the stack. tx_quiet, rx_quiet, scrambler_reset (if it is sent to FEC) and rx_lpi_active should be requests not indications.

SuggestedRemedy

Correct the instruction to say the correct number of new primitives and the RX_QUIET primitive and add missing primitives. Also add a statement that the new primitives are only required when EEE is supported. That could be added to the paragraph after the list.

It isn't clear why Clause 49 shows reset_scrambler crossing the interface since it isn't used by the lower layers.

Change primitves that go from PCS to FEC to .request.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **72.7.1** *P* **210** *L* **12** # 433

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Also applies to 72.7.2

Need to provide an indication that the new characteristics are only required when EEE is supported.

SuggestedRemedy

It may be easiest to refer to the new characteristics by putting them in a separate table or tables creating a subclause Additional transmitter and receiver characteristics for EEE.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
LPI Quiet is only used in EEE, so that is an indication.

Cl **74** *SC* **74.0.1** *P* **213** *L* **37** # 434

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

The EEE primitives also need to go between the FEC and the PMA

SuggestedRemedy

Add lines for the primitives. Also, the subclause number should be 74.4.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **51** *SC* **51.4.2** *P* **154** *L* **1** # 435

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

These are primitives on the service interface and should have primitive definitions in the style of 51.2

SuggestedRemedy

Add primitive definitions

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* *L* # 436
Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D** *backplane*

Across Clauses 49, 51, 72 and 74 there is a disconnect on what primitives are crossing the interface.

Clause 49 shows energy_detect going up the stack and tx_quiet, rx_quiet, scrambler_reset and rx_lpi_active going down the stack. tx_quiet and rx_quiet appear to be fine and consistant across the Clauses.

rx_lpi_active is defined as an indication in some places but it is a request. indications are signals that go up the stack.

It isn't clear what the benefit of using energy_detect is. The only difference between it and signal_detect is that signal_detect is not produced when there is energy but the FEC hasn't locked yet. Why move the PCS LPI state out of RX_QUIET when the FEC hasn't locked yet?

None of the lower layers use scrambler_reset so the primitive should be removed.

SuggestedRemedy

Make the primitive interfaces between these Clauses consistant. Delete scrambler_reset.

Perhaps delete energy_detect and use signal_detect.

Indicate in Clause 49 that rx_lpi_active is only used by FEC and need not be supplied when FEC is not used.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The suggested remedy has several requests:
1) As for making the primitives consistent, all the primitives going down are:
tx_quiet.request
rx_quiet.request
rx_lpi_active.request.

There is no need for scrambler_reset to be going from the PCS to lower layers so it will be deleted.

The primitive going up is:
energy_detect.indication

2) We cannot replace energy_detect with signal_detect.
Fundamentally all the three backplane PHYs uses energy_detect (an early signal) to deassert rx_quiet, which in effect wakes up the front end circuits, some of which generates signal_detect. The proposed change defeats the whole purpose of having energy_detect.

3) Indicate in Clause 49 that rx_lpi_active is only used by FEC and need not be supplied when FEC is not implemented.

Cl **55** *SC* **55.2.2.10** *P* **161** *L* **35** # 437
Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Indications are primitives that go up the stack, requests go down the stack. PCS_RX_LPI_STATUS goes down the stack so it is a request, not an indication

SuggestedRemedy

Change to .request

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **74** *SC* **74.5.4.1** *P* **215** *L* **9** # 438
Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

If this primitive is not removed (the subject of another comment of mine), this when generated section is incorrect.

SuggestedRemedy

When generated for this should be similar to 74.5.3.2 - FEC generates the primitive when the energy_detect primitive it received from the PMA changes. The model of the primitives for boolean variables (which is different than the real life signals) is that the primitive is generated when the value changes.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

ENERGY_DETECT is a indication coming from the PMA sublayer and FEC passes it to the PCS sublayer. Hence this primitive is not generated in the FEC sublayer.

Cl **74** *SC* **74.8.2.2** *P* **218** *L* **4** # 439

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

There is no need to rename fec_block_lock. Renaming variables can cause confusion and it should only be done where necessary or too painful to not change it. Here that isn't the case.

If it is necessary for signal_detect to go true before fec_block_lock goes true, then change the description of fec_signal_ok to be based on the received SIGNAL_OK = OK and (fec_block_lock + fec_rapid_block_lock). In addition, there is a problem with getting signal detect from combining normal and fec block lock as it will glitch False. In the following description, I have used fec_block_lock for the name of the signal generated by the block lock machine rather than fec_normal_block_lock.

fec_rapid_block_lock is described as going false when it doesn't receive the deterministic block. 4 complete "deterministic" blocks are sent in a 1 us scrambler_reset. Some of those are eaten by the time for signal detect and clock recovery so there may be only 1 or 2 received. The first one received will cause fec_rapid_block_lock to go true and will cause the block lock state machine to start trying lock at that slip value. Within another block or two, the block received isn't deterministic and fec_rapid_block_lock goes false. However, it takes at least 4 good blocks for the state machine to set fec_block_lock true.

As currently described, at the start of a recovery period or exit from LPI, signal detect will probably go true for an FEC block or two due to fec_rapid_block_lock, then go false for a few blocks due to the gap between fec_rapid_block_lock = true and fec_block_lock = true.

SuggestedRemedy

Don't change the name of fec_block_lock in the state machine. Just add fec_rapid_block_lock to the determination of signal_detect if it is necessary to speed that detection.

Additionally, if speeding the detection is necessary then fix the glitch where fec_rapid_block_lock goes false before fec_block_lock goes true.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will change the fec_normal_block_lock to fec_block_lock. And change the description for fec_signal_ok to add fec_rapid_block_lock.

Rejecting any change needed for glitch. The commenter state that 1 or 2 FEC blocks will be consumed by the CDR and signal detect circuit. But the deterministic fec blocks are transmitted after 12us of scrambled IDLE code words. Hence the CDR and signal ok will not consume those 1 or 2 frames. The FEC block lock needs at least 8 frames to loose lock.

Cl **74** *SC* **74.8.2.3** *P* **218** *L* **52** # 440

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

Including T_TYPE_NEXT in the functions appears to be an error in the standard. It isn't used in this Clause.

SuggestedRemedy

Do a service to humanity and remove the extraneous function.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This subsection is not under modification.
Sub editor needs more guidence to proceed.

Cl **14** *SC* **14.1.1** *P* **16** *L* **21** # 441

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

The grammar of the note is a bit ambiguous - it could be read as expecting that neither is supported.

SuggestedRemedy

"will support either 10BASE-T or 10BASE-Te." would be more clear. One could also use "will support either 10BASE-T or 10BASE-Te but not both."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See resolution of comment #346.

Cl **14** *SC* **14.1.1.1** *P* **17** *L* **14** # 442

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

The 10BASE-Te sentence isn't parallel to the 10BASE-T one. It doesn't specify a distance which gives the impression that perhaps only 10BASE-T provides for operation up to 100 m.

SuggestedRemedy

Add the distance for 10BASE-Te or remove the distance from the 10BASE-T one since the distance is already in the opening sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "The 10BASE-T PHY provides for operating over 0 m to at least 100 m of twisted pair cabling meeting ." to "The 10BASE-T PHY provides for operating over twisted pair cabling meeting ."

Cl **14** *SC* **14.10** *P* **24** *L* **7** # 443

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Should also add a line item to 14.10.3 to indicate support for 10BASE-Te.

SuggestedRemedy

Add the PICS item.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **14** *SC* **0** *P* *L* # 444

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

There are 86 occurences of "10BASE-T" in 802.3 section 1 not counting the Table of contents and 95 in section 2. This supplement adds 28 occurences of 10BASE-Te and it added some occurences of 10BASE-T so it is clear that it has not inserted "or 10BASE-Te" everywhere where 10BASE-T occurs in IEEE 802.3. Even just Clause 14 in 802.3 has 44 occurences of 10BASE-T.

Examples of three places where this causes problems are in Clause 28, Clause 30 and Clause 33.

The draft contains no edits to Clause 28 and its annexes so there is no way to auto-negotiate for 10BASE-Te operation. Bits A0 and A1 of the technology ability field apply to only 10BASE-T. Also 28.2.1.1 still requires "Compliant 10BASE-T MAUs transmit link integrity pulses" for autonegotiation so any device wanting to do auto-neg would still have to deliver the 10BASE-T voltage during auto-neg which defeats some of the purpose of doing 10BASE-Te.

In Clause 30, 10BASE-Te hasn't been added to the MAU types in 30.5.1.1.2 aMAUType.

The draft contains no edits to Clause 33 so it only allows DTE power operation with 10BASE-T and not with 10BASE-Te MAUs.

SuggestedRemedy

My preferred solution to this would be to define two subtypes of 10BASE-T operation, e.g. classic (10BASE-Tc) and EEE (10BASE-Te). Use the subtypes where there is a difference between the two such as transmit voltage level. Use 10BASE-T in statements that apply to both subtypes. I can understand the desire to not change the existing meaning of 10BASE-T, but it isn't working and not including the new subtype in 10BASE-T will cause problems - existing devices won't know that a new technology ability indicates something that is backward compatible with 10BASE-T over the appropriate cable.

If that isn't done, every instance of 10BASE-T in all of 802.3 needs to be examined and modified to include 10BASE-Te as appropriate.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See response to comment #356

Cl **22** *SC* **22.2.1.3.2** *P* **26** *L* **12** # 445

Thaler, Pat Broadcom

Comment Type **E** *Comment Status* **D**

"or" would be better than "and also" because only one of these is used to drive CARRIER_STATUS depending on whether EEE is in use.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #470 rewords the sentence.

Cl **22** *SC* **22.2.1.3.3** *P* **26** *L* **17** # 446

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

If PLS_CARRIER.indication is driven differently for LPI operation, then this paragraph needs to be qualified to only apply when not in LPI operation.

Also, LPI operation is used several places but never defined - for example, is a device "in LPI operation" only when LPI is being sent or is it when LPI has been enabled even though it may not be being sent at the moment?

SuggestedRemedy

Define "LPI operation" and when a behavior only applies when not in LPI operation, add that limitation.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Reword the opening part of the paragraph:

"For LPI operation, in full duplex mode RX_DV and CRS have no influence on CARRIER_STATUS."

Becomes:

"If the optional LPI function is supported then CARRIER_STATUS is overriden according to the behavior of the LPI transmit state diagram (see fig 22-21). The signal CRS has no effect on CARRIER_STATUS while in states LPI_ASSERTED and LPI_WAIT."

Cl **48** *SC* **48.2.6.2.5** *P* **134** *L* **3** # 447

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This text makes it sound like the figures replace or show modifications to the transmit and receive state machines.

Also the text should make a normative statement. For an example see the first sentence of 48.2.6.2.2.

Page 135 line 49 should also make a normative statement.

SuggestedRemedy

State that A PCS which supports EEE shall implement the LPI transmit and processes as shown in figures 48-9a and 48-9b and that these processes shall run when EEE is enabled. You can go on to explain that the transmit LPI state diagram controls tx_quiet which overrides disables the transmitter when true and that the receive one produces align_status and tells the receive state machine when a receive LPI has ended. Make the reference to the LPI timer tables normative too.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

"A PCS which supports the optional LPI function shall implement the LPI transmit and receive processes as shown in figures 48-9a and 48-9b. The transmit LPI state diagram controls tx_quiet which disables the transmitter when true. The receive LPI state diagram controls align_status during LPI and synchronizes the receive state machine with the end of the LPI."

Change the statement on p.135, l.49:

"The LPI functions shall use timer values for these state machines as shown in Table 48-9 for transmit and Table 48-10 for
receive."

Cl **48** *SC* **48.2.6.2.5** *P* **135** *L* **19** # 448

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

There appears to be a small bug in the state machine. If while in LPI, the link becomes degraded such that the receiver can not acquire deskew_align_status=OK, but the signal is still able to trigger signal_detect=OK though perhaps sluggishly or intermittantly, then Link Failure will not be detected.

Also note that at these speeds, signal detect is difficult and it is possible that noise on a none terminated line may cause signal detection. It is so difficult at these speeds to set a threshold that doesn't unsquelch for noise and does for signal that we made it optional in Clause 71 and rely mainly on gaining alignment as a measure of link quality.

Each time LPI is sent on the link, signal detect (which might be due to noise) will cause a transition from quiet to wake. If alignment cannot be acheived by the time the incoming signal returns to quiet, the state returns to quiet and the rx_tq_timer is restarted. This can go on indefiniately without detecting the failure because none of the timers time out.

This may delay failure detection or prevent it which hurts fast fail-over capabilities in end nodes and bridges. Also, if the machine doesn't get to RX_LINK_FAIL to assert align_status = FAIL, auto-neg to begin to restore the link can not start.

SuggestedRemedy

Start rx_tq_timer only in RX_SLEEP state so that cycles of signal detect that don't achieve alignment don't restart the timer.

Also, the definition of rx_tq_timer currently says that it is started in RX_QUIET but doesn't mention that it is also started in RX_SLEEP. Correct the definition to match the resolution of this comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Detailed resolution in comment #98

Cl **48** *SC* **48.2.6.2.5** *P* **136** *L* **3** # 449

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

The transmitter timers should also specify the acceptable range - either by min and max columns as for the receivers or by stating a tolerance.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "Value" to "Max"

Add a column "Min" use "19" "2.4" and "19" for rows 1, 2, 3 respectively.

Cl **49** *SC* **49.2.4.4** *P* **138** *L* **54** # 450

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Supported should be enabled since these signals should not be transmitted when the LP (or where there is an XGMII where the Reconcilliation sublayer) does not support EEE.

SuggestedRemedy

Change supported to enabled.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See comment #402

Cl **49** *SC* **49.2.9** *P* **141** *L* **15** # 451

Thaler, Pat Broadcom

Comment Type **T** *Comment Status* **D**

implemented SB enabled

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See comment #402

Cl **49** *SC* **49.2.13.2.3** *P* **141** *L* **38** # 452

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Something beginning "note that" isn't normative and bit errors could create an LI on a non-LPI link. We shouldn't place new requirements on a currently conformant device.

SuggestedRemedy

replace from "and" with "and, when EEE is enabled, all eight of which are not /LI/"

Also For "LI:" supported should be enabled.

This comment also applies to T_BLOCK_TYPE

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete the note & make LPI support statement normative as suggested - see comments #131, 132 for details.

See response to comment #402 for supported vs enabled.

Cl **49** *SC* **49.2.13.2.2** *P* **144** *L* **19** # 453

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

Make it clear that only devices implementing EEE need to implement the additional variables and counters either by putting them in a separate section or by adding a notation of that to each item.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Similarly to comment #394

Change the note on p.144, l.13 can be changed in a similar manner to comment #483 response:
"NOTE: If the optional low power idle function is implemented, then this variable is affected by the LPI receive state diagram. If the LPI function is not implemented then this variable is identical to rx_block_lock controled by the lock state diagram."

There is no necessity to group, or otherwise modify the descriptions for variables etc. that are associated with options. It is assumed that any competent designer (or synthesis tool) will be able to remove redundant hardware for options that are not required (the same reasoning as for comment
#419).

Cl **49** *SC* **49.2.13.3** *P* **147** *L* **2** # 454

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This state diagram also needs a note saying the state in the dotted box is optional.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

In most cases, the states and transitions required for optional behavior are not explicitly identified (e.g. CARRIER_EXTEND). It is left to the skill of the implementer to optimize away redundant structures.

However, to appease those who are especially nervous of EEE, add the following note:

Note: transition E is only required to support the optional LPI function.

Cl **48** *SC* **48.2.6.2.5** *P* **134** *L* **3** # 455

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This text makes it sound like the figures replace or show modifications to the transmit and receive state machines.

Also the text should make a normative statement. For an example see the first sentence of 48.2.6.2.2.

Page 150 line 4 should also make a normative statement.

SuggestedRemedy

State that A PCS which supports EEE shall implement the LPI transmit and processes as shown in figures 49-16 and 49-17 and that these processes shall run when EEE is enabled. You can go on to explain that the transmit LPI state diagram controls tx_quiet which disables the transmitter when true and that the receive one produces block_lock and tells the receive state machine when a receive LPI has ended. Make the reference to the LPI timer tables normative too.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This comment appears to be a "cut and paste" of comment #447. However, the clause and page have not been changed. The editor interprets that this comment was intended to be applied to Clause 49:

49.2.13.3.1 - p.148, l.1

The response for such a comment is:

"A PCS which supports the optional LPI function shall implement the LPI transmit and receive processes as shown in figures 49-16 and 49-17. The transmit LPI state diagram controls tx_quiet which disables the transmitter when true. The receive LPI state diagram controls block_lock during LPI and synchronizes the receive state machine with the end of the LPI."

Change the statement on p.150, l.4:

"The LPI functions shall use timer values for these state machines as shown in Table 49-2 for transmit and Table 49-3 for
receive."

Cl **49** *SC* **49.2.6** *P* **141** *L* **1** # 456

Thaler, Pat Broadcom

Comment Type **TR** *Comment Status* **D**

This says that holding the scrambler reset aids in block synchronization. Apparently this only applies to FEC block sychronization. The 64B/66B block lock state machine will not obtain lock with the scrambler off because it relies on the scrambler running to ensure that the only spot in a block where a persistant transtion occurs is at the sync header. If the scrambler is held reset for 1 us, then the clock state machine can have an incorrect lock until it is released.

There is no statement made of when scrambler reset should/may/shall be enabled. The simplest approach is to require scrambler_reset_enable to be true when the PHY has FEC and false otherwise.

If use of scramble reset is optional outside FEC or not mandatory for FEC, then it would have to be negotiated.

SuggestedRemedy

Add the requirements for when scrambler_reset_enable shall be true when FEC is operating and false otherwise. Also, change the description to say that it aids in FEC block synchronization.

Also, once signal detect indicates okay because of FEC lock and unscrambled data is arriving, the R PCS may think it has block lock because it can lock on any transition in the unscrambled data but it won't be producing useable receive data since it may have a bad lock and even if it happened to lock on the sync header, its descrambler is running even though the incoming 64B/66B blocks are not scrambled. Explain how that is to be handled.

If there is an intent for scrambler reset to be used outside FEC, then the mechanism for block lock will need to be specified/explained and enabling of scrambler reset will need to be added to clause 45 and auto-neg. Also, how the receiver knows when to enable its descrambler will need to be explained unless the assumption is that it is okay to get bad blocks out of the 64B/66B from the time that lock occurs until the input data is scrambled.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Scrambler_reset is no longer needed by the FEC sublayer.

Delete scrambler_reset and all associated specifications.

Cl **14** *SC* **14.4.1** *P* **22** *L* **43** # 457

Thompson, Geoff GraCaSI

Comment Type **ER** *Comment Status* **D**

I find no text added anywhere to clause 14 that states or even gives a hint of the compatibility between 10BASE-T and 10BASE-Te. How is a customer to know how to mix the two on a network?
Further, the text in 14.4.1 is not correct in the current market and proposed context.. The word "Since is inappropriate. That is, it is no longer the case that we believe that "a significant number of 10BASE-T networks are expected to be installed utilizing in-place unshielded telephone wiring" rather, the market has evolved to the extent that most telephones and networks (especially autonegotiating multi-speed adapters) are expected to utilize Category 5 or better cabling.

SuggestedRemedy

Rewrite the introductory paragraph to better reflect both the current market AND still make provision for the historical context that made use of "left-over" telephone wiring. Also, add a new subclause to clause 14 to address the topic of cross compatibility between 10BASE-T and 10BASE-Te, i. e. the two MDI can be freely mixed as long as the cabling meets the requirements for 10BASE-Te.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Interoperability between 10BASE-T and 10BASE-Te is addressed in 14.1.1.1 (i).

The first paragraph in 14.4.1 is text from the original standard and was not future-proof when originally written. It is not the objective of this task force to correct such text.

Cl **14** *SC* **14.4.1** *P* **22** *L* **48** # 458

Thompson, Geoff GraCaSI

Comment Type **ER** *Comment Status* **D**

This new text is in the wrong place. It is not "overview" text. (I do recognize that it was "stuck" here in order to avoid the sticky issue of restructuring and renumbering sub-clauses.)

SuggestedRemedy

Move to within the context of 14.4.2. I recognize that there may be restructuring necessary in order for this to end up as a clean, well-structured clause.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The text in consistent with the rest of the overview clause.

Cl **14** *SC* **14.8** *P* **23** *L* **51** # 459

Thompson, Geoff GraCaSI

Comment Type **ER** *Comment Status* **D**

The text: "e) 10BASE-T or 10BASE-Te support"
is likely to produce a label that ends up saying "Supports 10BASE-T or 10BASE-Te" which is not the intent

SuggestedRemedy

Change text to read: "Which of the two specifications is implemented, i.e. '10BASE-T' or '10BASE-Te' (not both)."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See resolution of comment #256.

Cl **14** *SC* **14.5.2** *P* *L* # 460

Thompson, Geoff GraCaSI

Comment Type **ER** *Comment Status* **D**

14.5.2 mandates that any port that offers MDI-X connectivity shall be marked with an "X". That mandate makes no allowance for current technology in which many PHY implementations are not of a fixed configuration with respect to the cross-over function. I expect many implementations of 10BASE-Te to have automatic MDI-X correction.

SuggestedRemedy

Revise text so that the X labeling requirement only applies to ports with fixed MDI/MDI-X configuration. It would be nice if we could all agree on a single character width symbol for auto-correction.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment makes a change to the base standard that is not impacted by the changes made for 10BASE-Te. It should be submitted as a revision request to the base standard.

Cl **30** *SC* **30.5.1.1.21** *P* **61** *L* **6** # 461

Thompson, Geoff GraCaSI

Comment Type **T** *Comment Status* **D**

The syntax of 30.5.1.1.21 aEEESupportList is not the same as that of etiher aMAUType or 30.6.1.1.5 aAutoNegLocalTechnologyAbility

SuggestedRemedy

The syntax of 30.5.1.1.21 aEEESupportList should match that of etiher aMAUType or (more likely) 30.6.1.1.5 aAutoNegLocalTechnologyAbility . that would allow the use of the same object parser for both and provide for easier mapping as to which PHYs are both present and switchable. This would provide for easier implementation and test software generation and checking.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the SYNTAX section to read:

"A SEQUENCE of ENUMERATIONS that match the syntax of aMAUType"

(this will be compatible with future changes for 40/100G)

Cl **24** *SC* **24.1.1** *P* **34** *L* **10** # 462

Thompson, Geoff GraCaSI

Comment Type **TR** *Comment Status* **D** *230*

There is mention of an "LPI agent" in this clause as the active element that causes the 100BASE-X PHY to go back and forth between LPI and normal operation. I find it strange that (a) there is no definition or specification of an LPI agent nor even any mention of it anywhere else in the draft, not even in the other clauses where one would expect a parallel use of such an agent to cause the same sort of switch for the other LPI PHYs (except 10BASE-Te)

SuggestedRemedy

Fully definne and specify the operation and service interfaces for the activating function for LPI (be it an "LPI agent" or other mechanism). Further, have that mechanism act on each of the LPI PHYs in a manner that is architecturally consistent across the entire standard.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Please refer to comment #230 for the suggested modification

Need clarification of the function of LPI agent across the entire draft. Pending on the discussion result of Chicago meeting.

Cl **30** *SC* **30.5.1.1.21** *P* **61** *L* **6** # 463

Thompson, Geoff GraCaSI

Comment Type **TR** *Comment Status* **D**

I don't understand what this attribute indicates. Is it the state of the standard at time of implementation? Or is it the PHYs for which the PCS and higher can support EEE operation?

SuggestedRemedy

Revise "BEHAVIOUR DEFINED AS:" text to clarify.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

"A read-only list of the possible PHY types for which the underlying system supports Energy Efficient Ethernet as defined in Clause 78."

Cl **40** *SC* **40.4.6.1** *P* **103** *L* **912** # 464

Traeber, Mario Infineon Technologies

Comment Type **TR** *Comment Status* **D**

There is a corner case inside the state diagram of Figure 40-15b in the outbound transitions from UPDATE. The main reason for this corner case is the asynchronous behavior of the state-machine but the synchronous transfer (symbol-period) of the inband control signals like loc_lpi_req, loc_update_done, loc_rcvr_status. This implies that signals may be received in parallel, e.g. rem_update_done=true and rem_lpi_req=false when in POST_UPDATE state. This, however, is assumed by the current version of the state machine not to occur.

Here's the description of the corner case:
The Slave transitions into POST_UPDATE due to timeout of lpi_update_timer. The Master is assumed to stay in UPDATE and it's loc_lpi_req stays true the whole time. When the Slave enters POST_UPDATE is will send it's loc_update_done to the MASTER. Assume that loc_lpi_req gets deasserted at the Slave shortly (<8ns) after entering into POST_UPDATE. This will cause a signaling of loc_lpi_req on the line to the MASTER. Now, by nature of the inband signaling both loc_update done=true and loc_lpi_req=false of the Slave are synchronized to the same symbol period and transferred synchronously to the Master. As such the Master receives both signals simultaneously. By current implementation the Master will take it's way back to IDLE because rem_lpi_req=false, although rem_update_done=true. This causes a problem to the Master since the Slave will do it's normal wake cycle via WAKE_SILENT, QUIET, WAKE and TRAINING. However, when the Slave enters QUIET it will stop signaling to the Master. As such the Master will break the link.

A better intoduction into this corner case is handled in the presentation traeber_01_0909.pdf

SuggestedRemedy

Change the outbound state transitions in UPDATE state as follows:

UPDATE->POST_UPDATE:
(rem_update_done=TRUE + lpi_update_timer_done) * (loc_lpi_req=TRUE)

UPDATE->IDLE:
loc_lpi_req=FALSE + (rem_lpi_req=FALSE * rem_update_done=FALSE)

This will cause the link-partners to follow via the POST_UPDATE when when at least one side of the link entered this state before.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

[Editor's note: The transition labeled "UPDATE->IDLE" reflects the transition from UPDATE to SEND IDLE OR DATA]

Cl **40C** *SC* **0** *P* *L* # 465

Traeber, Mario Infineon Technologies

Comment Type **TR** *Comment Status* **D**

Since clause 40 Next-Pages became mandatory. Within clause 40 (Annex40C) the ordering of the Next-Pages have been defined. Within clause 40 (Annex40C) the mandatory clause 40 relevant Next-Pages must be sent autonomously. In the current Draft 2.0 additional Next-Pages have been defined to advertize the EEE features. However, it is not yet defined in which order they must be sent in addition to the existing PHY Next-Pages. Especially legacy PHYs like 100base-TX did not require any Next-Pages up to now which will change. Existing tests will fail (see also UNH ANEG Test-Suite).

More details in traeber_02_0909.pdf

SuggestedRemedy

(1) Define a sequence ordering of the exchanged Next-Pages which is mandatory
(2) Define that these pages are sent autonomously before the SW Next-Pages

Change the Standard Draft:
(A) Include EEE MP and EEE UP into Figure 40C-2
(B) Include EEE MP and EEE UP into Figure 40C-3
(C) Add and Annex 25A which describes the clause 25 Next-Page ordering/autonomous for EEE pages similar to Annex 40C
(D) The concept shall be applied similarly to Extended Next-Pages, e.g. 10GbT

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

If comment #110 (make extended next page mandatory) is accepted, Annex 40C no longer applies and this comment is overtaken by events.

If next pages continue to be supported, then in regard to each item:

1) In Table 40-4, the pages are numbered sequentially (PAGE 2, PAGE 3, PAGE 4...). This indicates to the implementor that additional non-EEE pages should not be sent between PAGES 2 and 3. The intent is that PAGES 3 and 4 are the first two "additional next pages" to be sent.

2) Annex 40C is informative. The normative requirements for Auto-Negotiation support are stated in 40.5.1.2 and indicate the required sequence of pages. So long as the pages are sent with the correct format, in sequence, and per the protocol defined in Clause 28, whether it is done autonomously or in software is a matter of implementation.

Therefore, the suggested changes (A) and (B) need not be implemented. The advantage of the existing structure of Annex 40C is that it supports the notion that implementation of EEE is optional. The commenter's suggestedd remedy requires the inclusion of additional conditional states and transitions (or a parallel state diagram or annex consistent with proposed alternate document structures) to account for the difference between and implementation that supports EEE and one that does not.

The proposed changes (C) and (D) are beyond the scope of Annex 40C and should be discussed by the Task Force.

Cl **55** *SC* **55.3.2.2** *P* **163** *L* **23** # 466

Zimmerman, George Solarflare

Comment Type **TR** *Comment Status* **D**

Both clause 55 and clause 49 share a common block encoder (64/65B and 64/66B), yet the changes for Low Power Idle (/LI/) are different. These should use the same control code to maintain commonality, simplicity, and avoid confusion.

SuggestedRemedy

SuggestedRemedy: Change the control code for /LI/ in Clause 55 to 0x07 & make associated changes to R_Block_Type LI and T_Block_Type LI.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Based on email on the .az reflector the value will be changed to 0x06 in clause 49. Clause 55 will keep 0x07.

Cl **00** *SC* **0** *P* *L* # 467

Kim, Yong Broadcom

Comment Type **ER** *Comment Status* **D** *doc-structure*

Agree with H. Frazier's (and others') concerns (raised in July meeting) regarding existing compliant pre-802.1az 802.3 PHY needs to be preserved and clearly referenceable as valid 802.3 PHY. I see numerous area of concern when 802.3az text is integrated into exisitng 802.3-2008 PHY sections, including invalidating current compliant PHY as non-compliant.
Also my assumption is
1) PHY behavior without .3az option must not change,
2) PHY with .3az option connected to a legacy PHY, they must interoperate (presumably without the benefits of .3az),
in dealing with this issue.

SuggestedRemedy

Also agree with that H. Frazier's proposal presented during teleconference on this subject to create normative annex to reflect 802.3az changes into existing PHY clauses to be the cleanest method to both 1) minimize delays, 2) clearly reflect 802.3az PHY while preserving existing PHY conformance. Please adopt this approach (or suitable equivalent).

FYI - My technical comments (TRs) would clearly state whether the use of normative annex would satisfy comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #410

Cl **14** *SC* **1.1.1** *P* **17** *L* **12** # 468

Kim, Yong Broadcom

Comment Type **TR** *Comment Status* **D**

"This specification is generally met by 0.5 mm telephone twisted pair" is unclear and does not add any useful reference.

SuggestedRemedy

reference to (original) 14.4 is sufficient. Delete.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Reference to 0.5mm telephone twisted pair is in the original specification in clause 14.1.1.2.

Cl **14** *SC* **1.1.1** *P* **17** *L* **14** # 469

Kim, Yong Broadcom

Comment Type **ER** *Comment Status* **D**

"The 10BASE-Te PHY operation requires ISO/IEC 11801:1995
Class D or better cabling. This requirement can also be met by Category 5 cable and components as specified in ANSI/TIA/EIA-568-A-1995." is not clear.

Does the referenced cable meet 10BASE-T as well as 10BASE-Te? I know what the answer is, but not clear as written. Also 10BASE-Te PHY operation *requires* ISO/IEC... cable. If intended, then I did not find corresponding "shall* statement anywhere...

SuggestedRemedy

Please fix editorial issues and clarify. Thanks.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Requirements for 10BT and 10BTe are adequately described in the draft text. The first part of the paragraph describes the requirements for 10BT and the second part of the paragraph describes the requirements for 10BTe.

The draft text is clear in stating a minimum requirement for cables for 10BTe. Please suggest a remedy if the draft is ambigous.

Cl **22** *SC* **2.1.3.2** *P* **26** *L* **12** # 470

Kim, Yong Broadcom

Comment Type **TR** *Comment Status* **D**

PLS_CARRIER.indication on existing PHY is juast based on CRS prior. but "and also from the tramit LPI state machine" text forces implementor of non-802.3az PLS to implement clasue 22.7, where it does not say that 22.7 ought to be implemented for .3az option only.

SuggestedRemedy

Adopt Nomative Annex (or equivlent), or

- clearly state in 22.2.1.3.2 that IF optional LPI implemetned then PLS_CARRIER.indication can be derived from the transmit LPI state machine (also insert the reference Xref/22.7a.2 to be reader-friendly).
- also add optional nature of 22.7a in 22.7a.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

To be consistent with other clauses, text needs to be added to highlight the optional nature of LPI. (see also comment #407)

Change "and also from the transmit LPI state machine" to "and the LPI assert function if the optional LPI signaling is supported (see 22.7a.2)"

Add at the beginning of 22.7a
"Certain PHYs support Energy Efficient
Ethernet (see Clause 78). PHYs that support Energy Efficient Ethernet support Low Power Idle assertion and detection."

Cl **24** *SC* **1.1** *P* **34** *L* **13** # 471

Kim, Yong Broadcom

Comment Type **ER** *Comment Status* **D** *232*

"The only 100BASE-X PHY that supports this capability is 100BASE-TX." should have "optionally" word inserted.

SuggestedRemedy

Adopt Nomative Annex (or equivlent), or

change to "The only 100BASE-X PHY that optionally supports this capability is 100BASE-TX."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Please see response to comment #232 and #230.

Cl **24** *SC* **2.4.2** *P* **42** *L* **11** # 472

Kim, Yong Broadcom

Comment Type **T** *Comment Status* **D** *472*

In idle state, for a PHY, if TXD[3:0]=TX_LP_IDLE, the transition to the optional implementation must be taken. Or TX_ER=TRUE path to START ERROR J state transition must be taken, if option is not implemented. It is not [technically] clear, since TX_ER defined in 22.2.1.6 and 22.2.2.5(originally intended to "repeat" data errors) could take on any value (and the text says, not required to implement in RS, shall implement in PHY, and may implement in MAC) including TX_LP_IDLE, coincidentally.

SuggestedRemedy

Adopt Nomative Annex (or equivlent), or

Adding text to 22.2.1.6 to address this concern -- but I see catch 22 -- perhaps the TG could address this better. If we add text to avoid TX_LP_IDLE, then we are changing the legacy PHY.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Based on Fig 24-8, if the idle mode option is not implemented, the IDLE state will stay unchanged when it receives TXD[3:0]=TX_LP_IDLE*TX_EN=FALSE*TX_ER=TRUE. Therefore, it will not move to "START ERR J" state at all.

Cl **24** *SC* **2.3.2** *P* **41** *L* **2** # 473

Kim, Yong Broadcom

Comment Type **TR** *Comment Status* **D** *473*

signal_status is only used for LPI portion of the statemachine, but the description does not indicate as such (missing, and not reader-friendly at best). This signal was used in normal operation to drive link monitor statemachine (24.3.4.4). It is not clear whether .3az PHY were to implement 24.3.4.4 link monitor statemachine and turn it off (or not!) if option is not used. Also not clear what normal PHY were to implement after all the changes are integrated.

SuggestedRemedy

Adopt Nomative Annex (or equivlent), or

Clarify the relationship between this state variable use in the RX statemachine and link monitor statemachine.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The signal_status is generated by PMD and is used by optional LPI mode of Receive state machine as well as by Link Monitor state machine and Far-End Fault state machine. It has been shown in Functional block diagram of Figure 24-4.

In order to clarify the role of signal_status in RX, a statement is added at the end of the paragraph in line 43 of page 39 as follows:

" A continuous indication of signal detection on the channel through signal_status as communicated by the PMD_SIGNAL.indicate primitive is used to control the transitions among different states in idle mode as depicted in Figure 24-11b. "

Cl **24** *SC* **24.8.2.3** *P* **51** *L* **10** # 474

Kim, Yong Broadcom

Comment Type **T** *Comment Status* **D** *LATE*

Shouldn't PICs for PCS (this clause) and PMA (25.5) be aligned? Meaning the standard does not prevent PCS to have .3az option and PMA not, which is fine. But there is no indication that .3az option ought to be implemented in both or neither. Perhaps there is a better place to specify (or recommend) .3az option to be implemented consistently, and have PICS reflect the resulting text.

SuggestedRemedy

Should be T (not TR) but submited after comment submission deadline. If adopting Nomative Annex (or equivlent) approach, there may be a good place to include this comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add a new bullet (e) on 24.3.2
"(e) Optional Low Poer Idle mode, which disables the Far-End Fault function and modifies the link down condition with the PMA_RXLPI.request primitive. "

Add a new subclause
"24.3.2.3 Low Power Idle Mode
The Low Power Idle mode, when implemented and enabled as communicated by PMA_RXLPI.request primitive, affects PMA in two ways. It must disable the operation of Far-End Fault process due to the frequent on and off activity of signal_status when line state is changed between quiet state and other non-quiet states. It also receives additional link failure detection signal as communicated by PMA_LPILINKFAIL.request primitive and changes the Link Monitor state machine to allow an exit from low power state to link down state on faulty situation."

Modify 24.8.2.3 as follows
*LP1 support PCS LPI function 24.2.2.5
*LP2 support PMA LPI function 24.3.2.3

Cl **30** *SC* **5.1.1.21** *P* **60** *L* **52** # 475

Kim, Yong Broadcom

Comment Type **E** *Comment Status* **D** *LATE*

Understand why aMAUTypeList was not touched, and aEEESupportList was added.
But the descriptions of the MAU type are different than aMAUTypeList. Did not see any rationale for the differences. For example,
aMAUTypeList --
100BASE-TX Two-pair... Clause 25, duplex mode unknown.
100BASE-TXFD Two-pair.... Clause 25, Full duplex mode.

aEEESupportList --
100BASE-TX Clause 24, Clause 25 MLT-3

SuggestedRemedy

Please make the description consistent. e.g. use 100BASE-TXHD in aEEESupportList, and use the same description (confusing to the reader).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #461 resolves this.

Cl **30** *SC* **31** *P* *L* # 476

Kim, Yong Broadcom

Comment Type **T** *Comment Status* **D** *LATE*

Perhaps already addressed in .3az (in which case, ignore this comment).
Pause/Flow control use of the MAC Control - should it benefit from LPI/EEE?
LPI timing and Pause timing overlap enough to make explict statement (allowed, not allowed, orthogonal, etc).

SuggestedRemedy

Should be T (not TR) but submited after comment submission deadline.

Consider specifying relationship between .3az and clause 31, if not yet considered.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Nothing has been proposed as part of 802.3az that would require any change to the operation (or the documentation) of Clause 31.

Cl **35** *SC* **2.1** *P* **65** *L* **31** # 477

Kim, Yong Broadcom

Comment Type **T** *Comment Status* **D** *LATE*

The clause title is "mapping of GMII signals to PLS service primitives...".
The new text "The mapping changes.... shall not be set to ASSERT unless... state to OK." looks like a behavioral specification. Is there a good way to just reference the right statemachine (if none, then perhaps this specification should be moved to a separate clause, as done in 22.7a).

SuggestedRemedy

Should be T (not TR) but submited after comment submission deadline.

Please make it so.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remedied by the response to comment #357.

Cl **35** *SC* **2.2** *P* **66** *L* **45** # 478

Kim, Yong Broadcom

Comment Type **T** *Comment Status* **D** *LATE*

The inserted notes "NOTE-GTX_CLK may be halted during periods of low utilization according to 35.2.2.6a." and "NOTE-RX_CLK may be halted during periods of low utilization according to 35.2.2.9a." is not clear whether this note applies to legacy PHY (pre .3az).

35.2.2.6a and .9a does not reference LPI clause.

SuggestedRemedy

Should be TR but submited after comment submission deadline.

Adopt Nomative Annex (or equivlent), or

Add optional implementation wording to the notes or 35.2.2.6a and .9a or both. Otherwise, legacy PHY must deal w/ no-clock period in their design (or risk of making existing PHY based systems all non-conformant).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The items are notes and draw the readers' attention to the subclauses. In the subclauses it is clear that this clock stop function is strictly controlled by LPI behavior and explicit control registers.

Cl **35** *SC* **2.2.4** *P* **66** *L* **15** # 479

Kim, Yong Broadcom

Comment Type **T** *Comment Status* **D** *LATE*

The text "The PHY shall interpret the combination of TX_EN, TX_ER and TXD<7:0> as shown in Table 35-1 as an assertion of low power idle. Transition into and out of the low power idle state is shown in Figure 35-6a." breaks the legacy PHY and [unintentionally] make all systems based on legacy PHY non-conformant.

SuggestedRemedy

Should be TR but submited after comment submission deadline.

Adopt Nomative Annex (or equivlent), or

Add optional implementation wording text or correct via reference.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The use of a "shall" that applies to the PHY is not appropriate, therefore reword:

"If the optional LPI function is supported, the RS shall use the combination of TX_EN deasserted, TX_ER asserted and TXD<7:0> equal to 0x01 shown in Table 35-1 as a request to enter, or remain in low power idle."

Note that this error would have equal effect whether contained in this clause or a separate annex.

Cl **35** *SC* **2.2.7** *P* **67** *L* **35** # 480

Kim, Yong Broadcom

Comment Type **T** *Comment Status* **D** *LATE*

The text "While RX_DV is de-asserted, the PHY may provide a False Carrier indication or assert low power idle by asserting the RX_ER signal while driving the specific value listed in Table 35-2 onto RXD<7:0>. See 36.2.5.2.3 for a description of the conditions under which a PHY will provide a False Carrier indication. Low power idle transitions are described in 35.2.2.9a." describes two possible behaviors:
1. LPI rx, - 35.2.2.9a
2. False Carrier - 36.2.6.2.3

It's not clear which behaivor has priority, and 35.2.2.9a does NOT indicate whether this only refers to .3az option -- "When the PHY receives signals from the link partner to indicate transition into the low power state it indicates
this to the LPI client by asserting RX_ER and setting RXD<7:0> to 01 while keeping RX_DV deasserted."

SuggestedRemedy

Should be TR but submited after comment submission deadline.

Adopt Nomative Annex (or equivlent), or

Add optional implementation wording text in 35.2.2.7, or in 35.2.2.9a on LPI, and that if the option is not implemented, false carrier takes precedence (whereas if option is implemented, it is the other way around).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment regarding priority makes no sense. There is no priority between different indications - if TXD<7:0> = 0x01 the indication is LPI; if TXD<7:0> = 0x0E the indication is false carrier; if TXD<7:0> = 0x0F the indication is carrier extend; if TXD<7:0> = 0x1F the indication is carrier extend error. Since the data bus cannot have multiple different values simultaneously, there is no prioritization specified - either for the existing or for the new indication.

It would be useful to add wording to 35.2.2.7a and 35.2.2.9a to highlight that the implementation is optional (even though no such wording exists for carrier extension that is similarly optional).

The first sentence for 35.2.2.7a and 35.2.2.9a becomes:

"The optional Low Power Idle operation and the LPI client are described in 78.1"

Cl **35** *SC* **Table 35-2** *P* **26** *L* # 481

Kim, Yong Broadcom

Comment Type **ER** *Comment Status* **D** *LATE*

There no accompying specification text associated w/ "Assert low power idle" other than in clause 35.2.2.7 "While RX_DV is de-asserted, the PHY may indicate that it is receiving low power idle by asserting the RX_ER signal while driving the value <01> onto RXD<7:0>." which is unclear - does it assert or not? is it optional behavior, or optional based on .3az implementation status?

SuggestedRemedy

Should be ER but submited after comment submission deadline.

Adopt Nomative Annex (or equivlent), or

Please clarify.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #310 rewords the paragraph.

The words "Assert low power idle" may be found in Table 35-2 for a very clear and normative definition.

This comment is completely unrelated to the document structure, the suggested remedy to adopt a Nominative (sic) Annex is non sequitor.

Cl **35** *SC* **5** *P* **70** *L* **5** # 482

Kim, Yong Broadcom

Comment Type **T** *Comment Status* **D** *LATE*

[similar comment as 100M/s] It would be friendly to make LPI option status in PICS of Clase 35 (RS), Clause 36 (PCS), etc, to be consistent so that it is all or none, while not preventing systems (I don't know any good reason to though) to implement sub-layer by-sublayer option.

SuggestedRemedy

Should be T but submited after comment submission deadline.

No suggestions -- if deemed useful, please address it.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The intent of the comment is not immediately apparent. Comments #38 & 36 adjust the PICS for clauses 35 and 36 to make them more consistent and convenient.

The general approach of 802.3 clause structures make "system wide" requirements or PICS entries difficult.

Cl **36** *SC* **2.5.1.3** *P* **72** *L* **3** # 483

Kim, Yong Broadcom

Comment Type **T** *Comment Status* **D** *LATE*

This note, along with RX statemachine and Sync statmachine, changes the legacy PHY, and makes legacy implementation not even referenceable once the new texts are all accepted.

'Add a note in 36.2.5.1.3 below the definition for "sync_status"
NOTE: If the optional low power idle function is implemented, then this variable is affected by the LPI receive state machine.'

sync_status in legacy is used in Synchronization Statemachine. In .3az, sync_status is used in receive statemachine. .3az Sync SS uses code_sync_status, with equivalent description as sync_status. After the .3az changes integrated it would read:

"sync_status
A parameter set by the PCS Synchronization process to reflect the status of the link as viewed by the receiver.
Values: FAIL; The receiver is not synchronized to code-group boundaries.
OK; The receiver is synchronized to code-group boundaries.
NOTE: If the optional low power idle function is implemented, then this variable is affected by the LPI receive state machine.

code_sync_status
Variable used to by the synchronization state machine to indicate that receiver is synchronized to code-group boundaries.
Values: FAIL; The receiver is not synchronized to code-group boundaries.
OK; The receiver is synchronized to code-group boundaries."

We now have legacy PHY with no sync statemachine, since the variable sync_status does not exist in the RX SS, and where does code_sync_status come from?

SuggestedRemedy

Should be TR but submited after comment submission deadline.

Adopt Nomative Annex (or equivlent), or

Please clarify such that legacy PHY behaves as before, and .3az enhancement is compatible.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment appears to express some confusion over PHY behavior and specific variable names. The variable names are never part of the compliance requirement, only the externally visible behavior is normatively required.

In order to reduce confusion, change the note on p.72, l.3:

"NOTE: If the optional low power idle function is implemented, then this variable is affected by the LPI receive state machine. If the LPI function is not implemented then this variable is identical to code_sync_status controled by the synchronization state machine."

Cl **78** *SC* **78.2** *P* **232** *L* **47** # 501

Taich, Dimitry Teranetics

Comment Type **TR** *Comment Status* **D**

Submitted on behalf of Curtis Donahue (UNH IOL)
This is concerning Table 78-2. For 10GBASE-T mode, the Tq(min) parameter is higher then Tq(max) parameter. In this mode both Tq(min) and Tq(max) take same value, 39.68usec (Ts - Tr = 320nsec*(128-4) = 39680nsec). It looks like Tq(min) was rounded while Tq(max) was not.

SuggestedRemedy

In 10GBASE-T row change Tq(min) to 39.68usec

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.